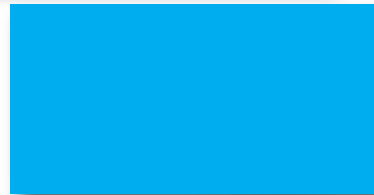
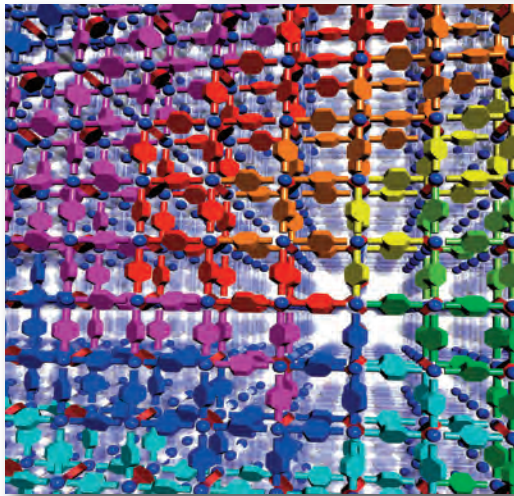
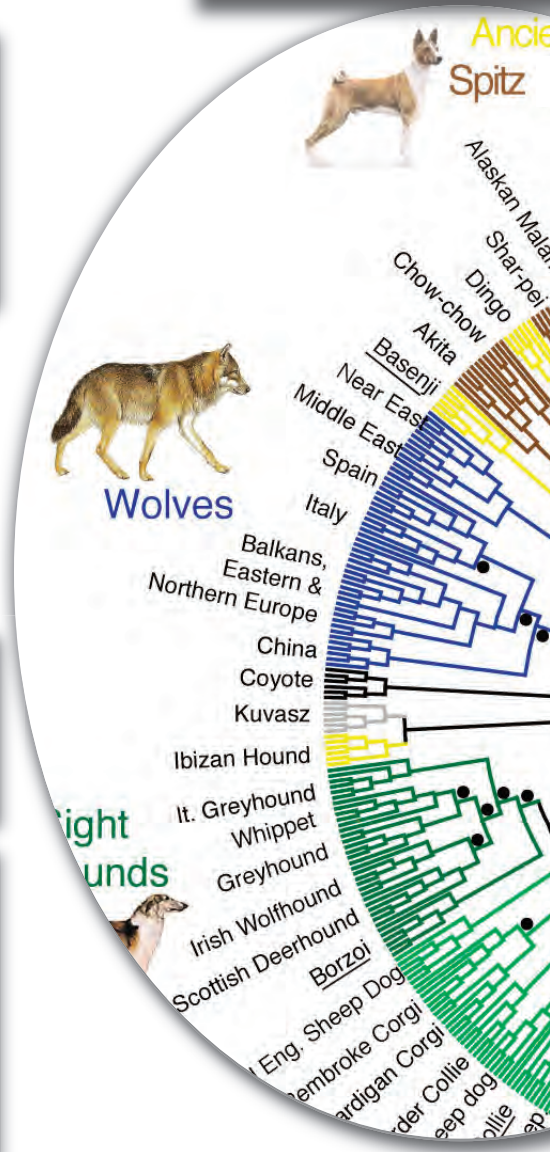


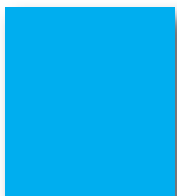
Teaching



Research



Service



Academic Calendars

2010 – 2011

Fall Quarter 2010

Quarter begins	September 20
Instruction begins	September 23
Veterans Day holiday	November 11
Thanksgiving holiday	November 25–26
Instruction ends	December 3
Common final examinations	December 4–5
Final examinations	December 6–10
Quarter ends	December 10
Christmas holiday	December 24–27
New Year's holiday	December 30–31

Winter Quarter 2011

Quarter begins	January 3
Instruction begins	January 3
Martin Luther King, Jr. holiday	January 17
Presidents' Day holiday	February 21
Instruction ends	March 11
Common final examinations	March 12–13
Final examinations	March 14–18
Quarter ends	March 18
César Chávez holiday	March 25

Spring Quarter 2011

Quarter begins	March 28
Instruction begins	March 28
Memorial Day holiday	May 30
Instruction ends	June 3
Common final examinations	June 4–5
Final examinations	June 6–10
Quarter ends	June 10
Commencement ceremonies	June 10–11

2011 – 2012

Fall Quarter 2011

Quarter begins	September 19
Instruction begins	September 22
Veterans Day holiday	November 11
Thanksgiving holiday	November 24–25
Instruction ends	December 2
Common final examinations	December 3–4
Final examinations	December 5–9
Quarter ends	December 9
Christmas holiday	December 26–27
New Year's holiday	December 30–January 2

Winter Quarter 2012

Quarter begins	January 4
Instruction begins	January 9
Martin Luther King, Jr. holiday	January 16
Presidents' Day holiday	February 20
Instruction ends	March 16
Common final examinations	March 17–18
Final examinations	March 19–23
Quarter ends	March 23

Spring Quarter 2012

Quarter begins	March 28
César Chávez holiday	March 30
Instruction begins	April 2
Memorial Day holiday	May 28
Instruction ends	June 8
Common final examinations	June 9–10
Final examinations	June 11–15
Quarter ends	June 15
Commencement ceremonies	June 15–16

Online Publications

The *UCLA General Catalog* is available at <http://www.registrar.ucla.edu/catalog/>. Links to updates of UCLA courses and curricula are available from the online *Catalog* main menu.

Consult the online *Schedule of Classes* for detailed information on registration and enrollment and for academic and administrative deadlines. The online *Schedule* at <http://www.registrar.ucla.edu/schedule/> has the most current information about fees, deadlines, and courses.

UCLA General Catalog



2010-11

UCLA® General Catalog

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Cover, UCLA faculty, students, and research, clockwise from top: 1. Robert B. Goldberg, professor of molecular, cell, and developmental biology and Luckman distinguished teaching award recipient, leverages new distance-learning technologies to teach UCLA classes from northern California to Kyoto University. 2. A page of a book from Shakespeare's time, part of the Paul Chrzanowski collection donated to the Clark Library. 3. Genetic marker study pointing to the origin of dogs in the Middle East, from the research of Robert Wayne, professor of ecology and evolutionary biology, and graduate student Bridgett vonHoldt. 4. Chancellor Gene D. Block and Los Angeles Mayor Antonio Vilaraigosa are welcomed by students at Gompers Middle School to the start of Volunteer Day. 5. Dance student Rachel Lincoln performs a solo work. 6. Illustration of 3-D synthetic DNA-like crystals created by Omar M. Yaghi, professor of chemistry, and graduate student Hexiang "DJ" Deng; the synthetic gene-like structure could capture carbon dioxide emissions. 7. Andrea M. Ghez, professor of astronomy and astrophysics, 2004 Gold Shield Faculty Prize winner and 2008 MacArthur Fellow, discovered and confirmed the existence of a massive black hole at the center of the Milky Way galaxy.

The UCLA Volunteer Center creates innovative events and programs to inspire students, faculty, and staff to play an active part in their community. For details, see <http://volunteer.ucla.edu>.

Title page: Powell Library.

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The *UCLA General Catalog* is available online at <http://www.registrar.ucla.edu/catalog/>.

Every effort has been made to ensure the accuracy of the information presented in the *UCLA General Catalog*. However, all courses, course descriptions, instructor designations, curricular degree requirements, and fees described herein are subject to change or deletion without notice.

The departmental websites referenced in department addresses in this catalog are maintained by independent operators and do not necessarily reflect approved curricula and courses information. Consult the online catalog for the most current, officially approved courses and curricula.

Other information about UCLA may be found in the announcements of the Schools of Dentistry, Education and Information Studies, Engineering and Applied Science, Law, Management, Medicine, Nursing, Public Affairs, and Public Health, and in literature produced by the School of the Arts and Architecture and School of Theater, Film, and Television. The most current information on graduate programs is available at <http://www.gdnet.ucla.edu>, which contains a link to Graduate Division publications, including *Program Requirements for UCLA Graduate Degrees* which has the complete text for officially approved graduate programs.

UCLA Accreditation

UCLA is accredited by the Western Association of Schools and Colleges and by numerous special agencies. Information regarding the University's accreditation may be obtained in the Office of Academic Planning and Budget, 2107 Murphy Hall.

Western Association of Schools and Colleges
985 Atlantic Avenue, Suite 100
Alameda, CA 94501
(510) 748-9001

University of California, Los Angeles

Los Angeles, CA 90095-1361
Main telephone: (310) 825-4321
Speech- and hearing-impaired access: TTY (310) 825-2833
<http://www.ucla.edu>

FROM THE CHANCELLOR OF UCLA



The *UCLA General Catalog* for 2010-2011 presents the wealth of academic opportunities available at one of the world's premier universities.

A leader in education, research, and service, UCLA represents the very best of what a university can be. Our extraordinary students come from an incredibly diverse range of backgrounds; our faculty are committed to excellence in scholarship and teaching; and many of our academic programs are ranked among the world's best.

As a research university committed to creating and disseminating knowledge across the disciplines, we are especially proud of the richness and breadth of our teaching program which comprises 192 majors and more than 14,000 courses UCLA College of Letters and Science and 11 professional schools.

This catalog includes opportunities for graduate and undergraduate students, including those that offer priority enrollment for lower division students. Among these are Fiat Lux Seminars, which offer small classes in a broad array of subjects; Freshman Clusters, which engage students in yearlong, team-taught interdisciplinary examinations of an array of timely topics; and advanced research opportunities.

Our campus is home to a vibrant academic community of faculty and student scholars who advance knowledge, pursue intellectual achievement, collaborate across disciplines, and address social challenges through engagement with the community.

I encourage you to explore UCLA beyond this catalog. Please visit us on campus or online at <http://www.ucla.edu>.

A handwritten signature in black ink that reads "Gene D. Block". The signature is written in a cursive, flowing style.

Gene D. Block
Chancellor

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UCLA Majors and Degrees

COLLEGE OF LETTERS AND SCIENCE

African Studies Interdepartmental Program
African Studies M.A.

Afro-American Studies Interdepartmental Program
Afro-American Studies B.A., M.A.

American Indian Studies Interdepartmental Program
American Indian Studies B.A., M.A.

Anthropology Department
Anthropology B.A., B.S., M.A., Ph.D.

Applied Linguistics Department
African Languages B.A.
Applied Linguistics B.A., M.A., C.Phil., Ph.D.

Teaching English as a Second Language . . M.A.

Archaeology Interdepartmental Program
Archaeology M.A., C.Phil., Ph.D.

Art History Department
Art History B.A., M.A., Ph.D.

Asian American Studies Department
Asian American Studies B.A., M.A.

Asian Languages and Cultures Department
Asian Humanities B.A.
Asian Languages and Cultures M.A., C.Phil., Ph.D.

Asian Religions B.A.

Chinese B.A.

Japanese B.A.

Korean B.A.

Atmospheric and Oceanic Sciences Department
Atmospheric, Oceanic, and Environmental Sciences B.S.

Atmospheric and Oceanic Sciences M.S., C.Phil., Ph.D.

Bioinformatics Interdepartmental Program
Bioinformatics M.S., Ph.D.

Chemistry and Biochemistry Department
Biochemistry B.S.

Biochemistry and Molecular Biology M.S., C.Phil., Ph.D.

Chemistry B.S., M.S., C.Phil., Ph.D.

General Chemistry B.S.

Chemistry/Materials Science Interdepartmental Program
Chemistry/Materials Science B.S.

Chicana and Chicano Studies Department, César E. Chávez
Chicana and Chicano Studies B.A.

Classics Department
Classics M.A., C.Phil., Ph.D.

Classical Civilization B.A.

Greek B.A., M.A.

Greek and Latin B.A.

Latin B.A., M.A.

Communication Studies Department
Communication Studies B.A.

Comparative Literature Department
Comparative Literature B.A., M.A., C.Phil., Ph.D.

Computational and Systems Biology Interdepartmental Program
Computational and Systems Biology . . . B.S.

Conservation of Archaeological and Ethnographic Materials Interdepartmental Program
Conservation of Archaeological and Ethnographic Materials M.A.

Earth and Space Sciences Department
Earth and Environmental Science B.A.

Geochemistry M.S., C.Phil., Ph.D.

Geology B.S., M.S., C.Phil., Ph.D.

Geology/Engineering Geology B.S.

Geology/Paleobiology B.S.

Geophysics/Applied Geophysics B.S.

Geophysics/Geophysics and Space Physics . B.S.

Geophysics and Space Physics . M.S., Ph.D.

East Asian Studies Interdepartmental Program
East Asian Studies B.A., M.A.

Ecology and Evolutionary Biology Department
Biology B.S., M.A., C.Phil., Ph.D.

Ecology, Behavior, and Evolution B.S.

Marine Biology B.S.

Economics Department
Business Economics B.A.

Economics B.A., M.A., C.Phil., Ph.D.

Economics/International Area Studies . B.A.

English Department
American Literature and Culture B.A.

English B.A., M.A., C.Phil., Ph.D.

European Studies Interdepartmental Program
European Studies B.A.

French and Francophone Studies Department
French B.A.

French and Francophone Studies M.A., C.Phil., Ph.D.

French and Linguistics B.A.

Geography Department
Geography B.A., M.A., C.Phil., Ph.D.

Geography/Environmental Studies B.A.

Germanic Languages Department
German B.A.

Germanic Languages . M.A., C.Phil., Ph.D.

Scandinavian M.A.

Scandinavian Languages and Cultures . B.A.

Global Studies Interdepartmental Program
Global Studies B.A.

History Department
History B.A., M.A., C.Phil., Ph.D.

History/Art History Interdepartmental Program
History/Art History B.A.

Individual Field of Concentration
Individual Field of Concentration B.A.

Indo-European Studies Interdepartmental Program
Indo-European Studies C.Phil., Ph.D.

Institute of the Environment and Sustainability, Center for Interdisciplinary Instruction
Environmental Science B.S.

Integrative Biology and Physiology Department
Physiological Science B.S., M.S.

International Development Studies Interdepartmental Program
International Development Studies . . . B.A.

Islamic Studies Interdepartmental Program
Islamic Studies M.A., C.Phil., Ph.D.

Italian Department
Italian B.A., M.A., C.Phil., Ph.D.

Italian and Special Fields B.A.

Latin American Studies Interdepartmental Program
Latin American Studies B.A., M.A.

Linguistics Department
Linguistics B.A., M.A., C.Phil., Ph.D.

Linguistics and Anthropology B.A.

Linguistics and Asian Languages and Cultures B.A.

Linguistics and Computer Science B.A.

Linguistics and English B.A.

Linguistics and French B.A.

Linguistics and Italian B.A.

Linguistics and Philosophy B.A.

Linguistics and Psychology B.A.

Linguistics and Scandinavian Languages B.A.

Linguistics and Spanish B.A.

Mathematics Department
Applied Mathematics B.S.

Mathematics B.S., M.A., M.A.T., C.Phil., Ph.D.

Mathematics/Applied Science B.S.

Mathematics for Teaching B.S.

Mathematics of Computation B.S.

Mathematics/Atmospheric and Oceanic Sciences Interdepartmental Program
Mathematics/Atmospheric and Oceanic Sciences B.S.

Mathematics/Economics Interdepartmental Program
Mathematics/Economics B.S.

Microbiology, Immunology, and Molecular Genetics Department
Microbiology, Immunology, and Molecular Genetics B.S., M.S., Ph.D.

Middle Eastern and North African Studies Interdepartmental Program
Middle Eastern and North African Studies B.A.

Molecular Biology Interdepartmental Program
Molecular Biology Ph.D.

Molecular, Cell, and Developmental Biology Department
Molecular, Cell, and Developmental Biology B.S., M.A., C.Phil., Ph.D.

Molecular, Cellular, and Integrative Physiology Interdepartmental Program
Molecular, Cellular, and Integrative Physiology Ph.D.

Musicology Department
Music History B.A.

Musicology M.A., C.Phil., Ph.D.

Near Eastern Languages and Cultures Department
Ancient Near Eastern Civilizations B.A.

Arabic B.A.

Hebrew B.A.

Iranian Studies B.A.

Jewish Studies B.A.

Near Eastern Languages and Cultures M.A., C.Phil., Ph.D.

Neuroscience Interdepartmental Program
Neuroscience B.S.

Philosophy Department
Philosophy B.A., M.A., C.Phil., Ph.D.

Physics and Astronomy Department
Astronomy M.S., M.A.T., Ph.D.

Astrophysics B.S.
 Biophysics B.S.
 Physics B.A., B.S., M.S., M.A.T., Ph.D.

Political Science Department
 Political Science B.A., M.A., C.Phil., Ph.D.
 Public Administration M.P.A.

Psychology Department
 Cognitive Science B.S.
 Psychobiology B.S.
 Psychology B.A., M.A., C.Phil., Ph.D.

Slavic Languages and Literatures Department
 Central and East European Languages and
 Cultures B.A.
 Russian Language and Literature B.A.
 Russian Studies B.A.
 Slavic Languages and
 Literatures M.A., C.Phil., Ph.D.

Sociology Department
 Sociology B.A., M.A., C.Phil., Ph.D.

**Southeast Asian Studies Interdepartmental
 Program**
 Southeast Asian Studies B.A.

Spanish and Portuguese Department
 Hispanic Languages and
 Literatures C.Phil., Ph.D.
 Portuguese B.A., M.A.
 Spanish B.A., M.A.
 Spanish and Community and Culture B.A.
 Spanish and Linguistics B.A.
 Spanish and Portuguese B.A.

Statistics Department
 Statistics B.S., M.S., C.Phil., Ph.D.

Study of Religion Interdepartmental Program
 Study of Religion B.A.

Women's Studies Department
 Women's Studies B.A., M.A., Ph.D.

DAVID GEFLEN SCHOOL OF MEDICINE

Biological Chemistry Department
 Biological Chemistry M.S., Ph.D.

Biomathematics Department
 Biomathematics M.S., Ph.D.
 Clinical Research M.S.

**Biomedical Physics Interdepartmental
 Program**
 Biomedical Physics M.S., Ph.D.

Human Genetics Department
 Human Genetics M.S., Ph.D.

Medicine Schoolwide Program
 Medicine M.D.

**Microbiology, Immunology, and Molecular
 Genetics Department**
 Microbiology, Immunology, and Molecular
 Genetics M.S., Ph.D.

**Molecular and Medical Pharmacology
 Department**
 Molecular and Medical
 Pharmacology M.S., Ph.D.

**Molecular, Cellular, and Integrative Physiology
 Interdepartmental Program**
 Molecular, Cellular, and Integrative
 Physiology Ph.D.

Neurobiology Department
 Neurobiology M.S., C.Phil., Ph.D.

Neuroscience Interdepartmental Program
 Neuroscience Ph.D.

**Pathology and Laboratory Medicine
 Department**
 Cellular and Molecular
 Pathology M.S., Ph.D.

**GRADUATE SCHOOL OF EDUCATION
 AND INFORMATION STUDIES**

Education Department
 Education M.A., M.Ed., Ed.D., Ph.D.
 Educational
 Administration Joint Ed.D. with UCI
 Special Education Joint Ph.D. with CSULA

Information Studies Department
 Information Studies Ph.D.
 Library and Information Science M.L.I.S.

**Moving Image Archive Studies
 Interdepartmental Program**
 Moving Image Archive Studies M.A.

**HENRY SAMUELI SCHOOL OF
 ENGINEERING AND APPLIED SCIENCE**

Bioengineering Department
 Bioengineering B.S.

**Biomedical Engineering Interdepartmental
 Program**
 Biomedical Engineering M.S., Ph.D.

**Chemical and Biomolecular Engineering
 Department**
 Chemical Engineering B.S., M.S., Ph.D.

**Civil and Environmental Engineering
 Department**
 Civil Engineering B.S., M.S., Ph.D.

Computer Science Department
 Computer Science B.S., M.S., Ph.D.
 Computer Science and Engineering B.S.

Electrical Engineering Department
 Electrical Engineering B.S., M.S., Ph.D.

Engineering Schoolwide Programs
 Engineering M. Engr., M.S., Engr.

Materials Science and Engineering
 Materials Engineering B.S.
 Materials Science and Engineering M.S., Ph.D.

**Mechanical and Aerospace Engineering
 Department**
 Aerospace Engineering B.S., M.S., Ph.D.
 Manufacturing Engineering M.S.
 Mechanical Engineering B.S., M.S., Ph.D.

**JOHN E. ANDERSON GRADUATE
 SCHOOL OF MANAGEMENT**

Management Department
 Management
 M.B.A., M.F.E., M.S., C.Phil., Ph.D.

**SCHOOL OF THE ARTS AND
 ARCHITECTURE**

Architecture and Urban Design Department
 Architectural Studies B.A.
 Architecture
 M.Arch. I, M.Arch. II, M.A., Ph.D.

Art Department
 Art B.A., M.A., M.F.A.

Design | Media Arts Department
 Design | Media Arts B.A., M.F.A.

Ethnomusicology Department
 Ethnomusicology B.A., M.A., C.Phil., Ph.D.

Individual Field
 Individual Field B.A.

Music Department
 Music
 B.A., M.A., M.M., D.M.A., C.Phil., Ph.D.

World Arts and Cultures Department
 Culture and Performance M.A., Ph.D.

Dance M.F.A.
 World Arts and Cultures B.A.

SCHOOL OF DENTISTRY

Dentistry Department
 Dental Surgery D.D.S.

Oral Biology Section
 Oral Biology M.S., Ph.D.

SCHOOL OF LAW

Law Department
 Law LL.M., J.D., S.J.D.

SCHOOL OF NURSING

Nursing Department
 Nursing B.S., M.S.N., Ph.D.

SCHOOL OF PUBLIC AFFAIRS

Public Policy Department
 Public Policy M.P.P.

Social Welfare Department
 Social Welfare M.S.W., Ph.D.

Urban Planning Department
 Urban and Regional Planning M.U.R.P.
 Urban Planning Ph.D.

SCHOOL OF PUBLIC HEALTH

Biostatistics Department
 Biostatistics M.S., Ph.D.

Community Health Sciences Department
 Public Health M.S., Ph.D.

Environmental Health Sciences Department
 Environmental Health Sciences M.S., Ph.D.

**Environmental Science and Engineering
 Interdepartmental Program**
 Environmental Science and
 Engineering D.Env.

Epidemiology Department
 Epidemiology M.S., Ph.D.

Health Services Department
 Health Services M.S., Ph.D.

**Molecular Toxicology Interdepartmental
 Program**
 Molecular Toxicology Ph.D.

Public Health Schoolwide Programs
 Preventive Medicine and Public Health M.S.
 Public Health M.P.H., Dr.P.H.

**SCHOOL OF THEATER, FILM,
 AND TELEVISION**

**Film, Television, and Digital Media
 Department**
 Film and
 Television B.A., M.A., M.F.A., C.Phil., Ph.D.

Individual Field
 Individual Field B.A.

**Moving Image Archive Studies
 Interdepartmental Program**
 Moving Image Archive Studies M.A.

Theater Department
 Theater B.A., M.A., M.F.A.
 Theater and Performance Studies
 C.Phil., Ph.D.

Undergraduate Minors and Specializations

MINORS

John E. Anderson Graduate School of Management
Accounting

Graduate School of Education and Information Studies
Education Studies

Henry Samueli School of Engineering and Applied Science
Environmental Engineering

College of Letters and Science

African Studies
Afro-American Studies
American Indian Studies
Anthropology
Applied Developmental Psychology
Arabic and Islamic Studies
Armenian Studies
Art History
Asian American Studies
Asian Humanities
Asian Languages
Atmospheric and Oceanic Sciences
Biomedical Research
Central and East European Studies
Chicana and Chicano Studies
Civic Engagement
Classical Civilization
Cognitive Science
Comparative Literature
Conservation Biology
Disability Studies
Earth and Environmental Science
English
Environmental Systems and Society
European Studies

French
Geochemistry
Geography
Geography/Environmental Studies
Geology
Geophysics and Planetary Physics
Geospatial Information Systems and Technologies
German
Germanic Languages
Gerontology
Global Studies
Greek
Hebrew and Jewish Studies
History of Science and Medicine
Human Complex Systems
Italian
Labor and Workplace Studies
Language, Interaction, and Culture
Language Teaching
Latin
Latin American Studies
Lesbian, Gay, Bisexual, and Transgender Studies
Linguistics
Mathematics
Mexican Studies
Middle Eastern and North African Studies
Museum Studies
Music History
Naval Science
Near Eastern Languages and Cultures
Neuroscience
Philosophy
Political Science
Portuguese
Russian Language
Russian Literature

Russian Studies
Scandinavian
Social Thought
Society and Genetics
South Asian Studies
Southeast Asian Studies
Spanish
Spanish Linguistics
Statistics
Women's Studies
School of Public Affairs
Public Affairs
Urban and Regional Studies
School of Public Health
Public Health
School of Theater, Film, and Television
Film, Television, and Digital Media
Theater

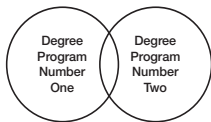
SPECIALIZATIONS

College of Letters and Science

Computing
Chemistry
Communication Studies
Ecology and Evolutionary Biology
Economics
Geography
Linguistics
Mathematics
Mathematics/Economics
Molecular, Cell, and Developmental Biology
Psychology
Sociology
International Relations

Graduate Concurrent and Articulated Degrees

CONCURRENT DEGREES



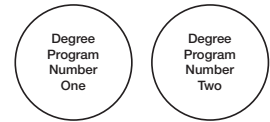
Concurrent degree programs allow students to reduce the number of courses required for two degrees, since some courses may apply to both degrees.

African Studies Interdepartmental M.A.—Public Health M.P.H.
Afro-American Studies Interdepartmental M.A.—Law J.D.
American Indian Studies Interdepartmental M.A.—Law J.D.
Architecture M.Arch. I—Urban Planning M.U.R.P.
Asian American Studies Interdepartmental M.A.—Public Health M.P.H.
Asian American Studies Interdepartmental M.A.—Social Welfare M.S.W.
Education M.A., Ph.D., M.Ed., or Ed.D.—Law J.D.
Islamic Studies Interdepartmental M.A.—Public Health M.P.H.
Latin American Studies Interdepartmental M.A.—Urban Planning M.U.R.P.
Management M.B.A.—Computer Science M.S.
Management M.B.A.—Dentistry D.D.S.

Inquiries about concurrent and articulated degree programs should be directed to graduate advisers in the departments and schools involved. Students should contact Graduate Admissions/Student and Academic Affairs for information on designing articulated programs.

Management M.B.A.—Latin American Studies Interdepartmental M.A.
Management M.B.A.—Law J.D.
Management M.B.A.—Library and Information Science M.L.I.S.
Management M.B.A.—Medicine M.D.
Management M.B.A.—Nursing M.S.N.
Management M.B.A.—Public Health M.P.H.
Management M.B.A.—Public Policy M.P.P.
Management M.B.A.—Urban Planning M.U.R.P.
Philosophy Ph.D.—Law J.D.
Public Health M.P.H.—Law J.D.
Public Health M.P.H.—Public Policy M.P.P.
Public Health M.P.H.—Social Welfare M.S.W.
Public Policy M.P.P.—Law J.D.
Social Welfare M.S.W.—Law J.D.
Social Welfare M.S.W.—Public Policy M.P.P.
Urban Planning M.U.R.P.—Law J.D.

ARTICULATED DEGREES



Articulated degree programs permit no credit overlap; students must complete degree requirements separately for each degree.

Latin American Studies Interdepartmental M.A.—Education M.Ed. in Curriculum
Latin American Studies Interdepartmental M.A.—Library and Information Science M.L.I.S.
Latin American Studies Interdepartmental M.A.—Public Health M.P.H.
Medicine M.D.—Graduate Division health science major Ph.D.
Oral Biology M.S. or Ph.D.—Dentistry D.D.S. or Certificate

About UCLA

Few universities in the world offer the extraordinary range and diversity of academic programs that students enjoy at UCLA. Leadership in teaching, research, and public service make UCLA a beacon of excellence in higher education, as students, faculty, and staff come together in a true community of scholars to advance knowledge, address societal challenges, and pursue intellectual and personal fulfillment.

TEACHING

The Conference Board of Associated Research Councils, which evaluates the quality of the faculty in 274 American research universities, rates UCLA fourteenth in the nation among both public and private universities. Of the 41 doctoral degree disciplines studied, 11 UCLA academic departments are ranked among the top 10 in the country and 20 are ranked among the top 20.

Distinguished faculty members at UCLA include Nobel prizewinners, Guggenheim fellows, Sloan fellows, and Fulbright scholars, as well as numerous members of the National Academy of Sciences and the American Academy of Arts and Sciences. In fact, UCLA consistently places among the leading universities nationwide in the number of these prestigious awards granted to its faculty members.

This remarkable pool of talent is shared between one college and 11 professional schools. The College of Letters and Science offers programs leading to both undergraduate and graduate degrees, as do the School of the Arts and Architecture, Henry Samueli School of Engineering and Applied Science, School of Nursing, and School of Theater, Film, and Television. The other professional schools offer graduate programs exclusively: the Graduate School of Education and Information Studies, School of Law, John E. Anderson Graduate School of Management, School of Public Affairs and, in the health sciences, the School of Dentistry, David Geffen School of Medicine, and School of Public Health.

Undergraduates may earn a Bachelor of Arts or Bachelor of Science degree in one of 126 different disciplines; graduate students may earn one of 88 master's and 109 doctoral and professional degrees.

Academic programs undergo continuous review and evaluation to maintain their excellence, and new degree programs are added as they are approved by the Academic Senate or The Regents.

RESEARCH

Pushing the boundaries of the known, UCLA researchers—faculty members and students, both graduate and undergraduate—venture every day into uncharted worlds from the molecular to the galactic.

Whether it's tracing the roots of urban decay, pioneering new drug therapies for cancer, or revealing a black hole at the center of our galaxy, research at UCLA is advancing the frontiers of knowledge.

Among the 10 leading research universities in the country, UCLA received \$966 million in 2008-09 in extramural grants and contracts to support its research. Each year it hosts hundreds of postdoctoral scholars who share its facilities.

Its laboratories have seen major breakthroughs in scientific and medical research; its study centers have helped foster understanding among the various cultures of the world; ongoing pursuits of new knowledge in vital areas continue to improve the quality of life for people around the world.

Faculty members teach both undergraduate and graduate courses and, through their research, create knowledge as well as transmit it. At UCLA, students are taught by the people making the discoveries. They exchange ideas with faculty members who are authorities in their fields and, even as undergraduates, are encouraged to participate in research to experience firsthand the discovery of new knowledge.

SERVICE

As a public university, serving the community is one of UCLA's greatest commitments. Undergraduate and graduate programs, research activities, community outreach programs, and grass-roots participation by students, faculty, staff, and alumni help to forge a partnership between the University and the entire Los Angeles region.

With the Ronald Reagan UCLA Medical Center, UCLA furthers its tradition of medical outreach and assures the highest quality of care to Los Angeles and

In terms of overall excellence, UCLA is one of America's most prestigious and influential public universities. It is consistently rated among the best universities in the nation.





The Los Angeles branch of the State Normal School welcomed students in 1882. Ground was broken for the Westwood campus in 1927, when construction began on Royce Hall.



The University of California System

The University of California traces its origins to 1868, when Governor Henry H. Haight signed the Organic Act providing for California's first "complete University." Classes began the following year at the College of California in Oakland. The first buildings on the Berkeley campus were completed in 1873, and the University moved into its new home. The following June, the University conferred bachelor's degrees on 12 graduates.

Today the University is one of the largest and most renowned centers of higher education in the world. Its 10 campuses span the state, from Davis in the north to San Diego in the south. In between are Berkeley, San Francisco, Santa Cruz, Merced, Santa Barbara, Riverside, Irvine and, of course, Los Angeles.

All campuses adhere to the same admission guidelines and high academic standards, yet each has its own distinct character and academic individuality. Riverside, for example, excels in the plant sciences and entomology; Davis has a large agricultural school and the University's only veterinary medicine program; San Diego has excellent oceanography and marine biology programs; San Francisco is devoted exclusively to the health sciences. Among the campuses there are five medical schools and four law schools, as well as schools of architecture, business administration, education, engineering, and many others. The UC campuses have a combined enrollment exceeding 228,000 students, over 90 percent of them California residents. About one fifth study at the graduate level. Some 150 laboratories, extension centers, and research and field stations strengthen teaching and research while providing public service to California and the nation. The collections of over 100 UC libraries on the 10 campuses are surpassed in size on the American continent only by the Library of Congress collection.

The UC faculty is internationally known for its distinguished academic achievements. On its 10 campuses the University has 31 Nobel laureates, and membership in the National Academy of Sciences is the largest of any university in the country.

The UC system is governed by a Board of Regents whose regular members are appointed by the Governor of California. In addition to setting general policy and making budgetary decisions for the UC system, The Regents appoint the President of the University, the 10 chancellors, and the directors and deans who administer the affairs of the individual campuses and divisions of the University.

The Regents delegate authority in academic matters to the Academic Senate, which determines academic policy for the University as a whole. The Senate, composed of faculty members and certain administrative officers, determines the conditions for admission and granting of degrees, authorizes and supervises courses and curricula, and advises University administrators on budgets and faculty appointments and promotions. Individual divisions of the Universitywide Academic Senate determine academic policy for each campus. Students participate in policymaking at both campuswide and systemwide levels.

A Brief History of UCLA

With only 11,000 inhabitants in 1880, the pueblo of Los Angeles convinced the state government to establish a State Normal School in Southern California. Enthusiastic citizens contributed between \$2 and \$500 to purchase a site, and on August 29, 1882, the Los Angeles Branch of the State Normal School welcomed its first students in a Victorian building that had been erected on the site of an orange grove. By 1914 Los Angeles had grown to a city of 350,000, and the school moved to new quarters—a Hollywood ranch off a dirt road that later became Vermont Avenue. In 1919, the school became the Southern Branch of the University of California and offered two years of instruction in Letters and Science. Third- and fourth-year courses were soon added; the first class of 300 students was graduated in 1925, and by 1927 the Southern Branch had earned its new name: University of California at Los Angeles. (The name was changed again in 1958 to University of California, Los Angeles.)

Continued growth mandated the selection of a site that could support a larger campus and, in 1927, ground was broken in the chaparral-covered hills of Westwood. The four original buildings—Royce Hall, Powell Library, Haines Hall, and Kinsey Hall—formed a lonesome cluster in the middle of 400 empty acres. The campus hosted some 5,500 students its first term in 1929. The Regents established the master's degree at UCLA in 1933 and, three years later, the doctorate. UCLA was fast becoming a full-fledged university offering advanced study in almost every field.

The most spectacular growth at UCLA occurred in the 25 years following World War II, when it tripled its prewar enrollment of 9,000 students and undertook what would become a \$260 million building program that included residence halls, parking structures, laboratories, more classrooms, service buildings, athletic and recreational facilities, and a 581-bed teaching hospital that is now one of the largest and most highly respected in the world.



the world. Low-income families receive top-quality treatment from School of Dentistry clinics on campus and in Venice. The Santa Monica-UCLA Medical Center's Rape Treatment Center offers 24-hour care to victims. The School of Public Health's Community Health Promotion Program supports community-service projects to benefit poor and underserved communities, and the School of Nursing offers care through its nurse-managed Health Center at the Union Rescue Mission. The University also supports K-12 enhancement programs such as the School of the Arts and Architecture's Music Partnership Program, which funds UCLA students to be academic and musical mentors for at-risk youth.

As UCLA gives to the community, Los Angeles gives something back. The University's arts and cultural programs, for example, attract more than half a million people each year, drawn by everything from world-class acts performing at Royce Hall to classic-film screenings from the School of Theater, Film, and Television archives. These relationships create opportunities for partnerships and growth that ensure UCLA's preeminence in the twenty-first century and beyond.

LIFE ON CAMPUS

Just five miles from the ocean, UCLA lies in one of the most attractive areas of Southern California. It is bordered on the north by the protected wilderness of the Santa Monica Mountains and on the south by Westwood Village. Some 326 buildings on 419 acres house the College of Letters and Science plus 11 professional schools and serve more than 39,984 students.

A UNIQUE SETTING

The Romanesque architecture of UCLA's early buildings blends with the modern design of new structures and provides a backdrop for diverse campus settings. Bruin Walk continually echoes with the chatter of students and vendors, but nearby, the botanical gardens provide a serene escape. While a hip-hop band energizes lunchtime crowds in the Ackerman quad, a classical recital may be taking place in Schoenberg Music Building, and students contemplating a Rodin or Lachaise in the Murphy Sculpture Garden may be unaware of a political rally organizing in Meyerhoff Park.

To give a feel for the dynamic atmosphere at UCLA, Undergraduate Admissions and Relations with Schools offers tours tailored to prospective undergraduates. See <http://www.admissions.ucla.edu/tours.htm> or call (310) 825-8764 or 206-3719.

A LARGE CAMPUS WITH A COMFORTABLE FEEL

The general campus population, some 35,957 students, is enriched by an additional 4,027 in the health sciences schools of Dentistry, Medicine, Nursing, and Public Health. While such numbers sound daunting, the University provides orientation sessions and innovative academic assistance programs to help acclimate new students and, through a range of services and social programs, new students quickly meet people with common interests in their academic

departments, residence halls, or clubs and organizations. Even athletic events help to cement relationships as the campus comes together to celebrate Bruin victories.

Large lecture groups exist, especially in introductory courses; however, 96 percent of lower division lecture classes in 2008-09 had under 200 students, and the University is striving to further reduce class size. Large lecture classes typically include discussion sections of about 25 students or smaller seminars and laboratory classes. There is an overall ratio of one faculty member for approximately 16 students.

Most UCLA faculty members set aside office hours for students and appreciate the opportunity for informal conversation. Professors are often aided by graduate student teaching assistants (TAs) who are available to talk about academic problems.

A DYNAMIC STUDENT BODY

Students at UCLA pride themselves on academic excellence. The Fall Quarter 2009 entering freshman class had an average high school GPA of 4.24, with an average composite score on the SAT Reasoning Test of 1,902 out of a possible 2,400.

One of the University's highest priorities is to advance the diversity of its students, faculty, staff, and administrators. UCLA's student population—nearly equally divided between men and women—yields the wide range of opinion and perspective essential to a great university.

Although most students are from California, they come from all 50 states and 66 foreign countries to study at UCLA. Ethnic minorities comprise 66.8 percent of the undergraduates and 61.8 percent of the graduate student population, and international students and scholars presently number over 5,000, making this one of the most popular American universities for students from abroad.

ACADEMIC PROGRAMS

UCLA has a tradition of advancing higher education and the common good through excellence in scholarship, research, and public service. Academic excellence, faculty distinction, and a comprehensive curriculum are hallmarks of the UCLA experience. The College of Letters and Science and 11 graduate and professional schools present an extraordinary richness and diversity of teaching programs. The International Education Office, Summer Sessions, UCLA Extension, and UCLA International Institute provide academic and professional resources to UCLA and the greater Los Angeles community, as well as to the international community.

UCLA COLLEGE AND SCHOOLS

Academic programs offered at UCLA span the breadth and depth of over 200 disciplines and areas of study. Lecture, discussion, laboratory, research, and creative courses are supplemented by seminars, honors pro-



The Romanesque architecture of UCLA's early buildings—including stately Powell Library and iconic Royce Hall—blends with the modern design of newer structures.

grams, specialized freshman clusters, internships, and education abroad opportunities. Instruction takes place in many unique venues, including specialized classrooms, computer and scientific laboratories, performance and studio spaces, and off-campus settings. Students and faculty members themselves mirror the cultural and racial diversity of Los Angeles. Academic programs are described in detail in the Curricula and Courses section of this catalog.

INTERNATIONAL EDUCATION OFFICE

The International Education Office (IEO) believes that study abroad and student exchange are exciting and broadening experiences that enrich any educational curriculum. The office works to facilitate international education by serving as the campuswide portal for the development and administration of study abroad and student exchange activity. It provides assistance to academic units seeking to develop study abroad programs, and it collaborates with the Academic Senate and departments to insure academic oversight of study abroad programs. The IEO also coordinates student advising services for undergraduate and graduate students interested in studying abroad.

The IEO administers several programs, including the Education Abroad Program (EAP), Quarter Abroad, Travel Study, Non-UC Programs, and various student exchange agreements.

Full details about the academic programs abroad, requirements, and application procedures are available in B300 Murphy Hall, (310)825-4995. See <http://www.ieo.ucla.edu>.

EDUCATION ABROAD PROGRAM

The Education Abroad Program (EAP) offers short- and long-term study programs in cooperation with over 140 host universities and colleges in more than 30 countries throughout the world. Participating students remain registered on their home campuses while studying abroad and receive full academic credit for their work. With careful planning, study abroad should not delay progress toward graduation. The cost of study is slightly more expensive than the cost of studying on campus. While on EAP, students are eligible for financial assistance.

TRAVEL STUDY

Travel Study has over 30 short-term summer programs on five different continents. The Travel Study programs offer UC credit, the promise of an exciting summertime adventure, and intensive learning experiences taught by distinguished UCLA faculty members. Over 20 academic departments offer Travel Study programs that include from 8 to 16 quarter units of UC credit. Financial aid is available for qualified UC students. Registration begins in November for the following summer on a first-come, first-served basis. Travel Study is open to all students at any academic level. There is no grade-point average requirement to participate.

NON-UC PROGRAMS

The IEO also advises students about the many study abroad programs available through other universities or outside providers. Students should check with IEO to make sure those organizations are credible and to learn about the policies involved in taking a planned academic leave (PAL) of absence for study abroad and the transfer of credit back to UCLA from other institutions.

SUMMER SESSIONS AND SPECIAL PROGRAMS

Throughout the summer, UCLA offers more than 700 courses from approximately 60 UCLA departments in six-, eight-, nine-, and 10-week sessions. In addition, more than 30 specialized institutes offer concentrated programs in business, the arts, law, medicine, languages, and other subjects. Travel Study programs offer the option to study language, culture, and history as part of an exciting and challenging travel experience. Many students take advantage of Summer Sessions to enroll in courses they were unable to take during the year, repeat courses in which they may have done poorly, lighten their academic load for the following term, or complete graduation requirements more quickly. Some special programs are designed for advanced high school students.

Admission to Summer Sessions does not constitute admission to the University in either undergraduate or graduate standing. Students who wish to attend UCLA in regular session must follow admission procedures described in the Undergraduate Study and Graduate Study sections of this catalog.

Regularly enrolled undergraduate students may attend UCLA Summer Sessions for full unit and grade credit. Summer Sessions work is recorded on the UCLA transcript, and grades earned are computed in the grade-point average. Check with a College or school counselor about applying these courses toward degree requirements and about any limitations the College or school may impose on Summer Sessions study. Financial aid funds are available to UCLA students.

Regularly enrolled graduate students may, with departmental approval, take regular session courses offered in Summer Sessions for credit toward a master's or doctoral degree; consult a graduate adviser in advance concerning this possibility. Summer Sessions courses may also satisfy the academic residence requirement for master's or doctoral degrees.

Unlike enrollment in regular terms, students may attend another college institution for credit while they are enrolled in Summer Sessions. Registration information is available in 1147 Murphy Hall, (310) 825-4101. See <http://www.summer.ucla.edu>.

UCLA EXTENSION

With over 65,000 adult student enrollments each year, UCLA Extension is one of the largest university continuing education programs in the world. It is designed to bring the benefits of the University—its scholars, research, and resources—to the community and the state as a whole.

Many of UCLA Extension's 4,500 classes are innovative and experimental in content, format, and teaching



methods. Credit and noncredit courses are offered in nearly every academic discipline, in many interdisciplinary areas, and in emerging fields.

In addition, Extension offers special programs each term on topical issues as well as those of ongoing public concern. Many noncredit Extension courses offer the opportunity to earn Continuing Education Units, widely used for relicensure and other professional/career-related purposes.

Although registering for Extension courses does not constitute admission to regular session, degree credit earned through Extension may apply toward the UCLA bachelor's or master's degree; consult a College or school counselor or graduate adviser before enrolling. For more information, refer to UCLA Extension under Transfer Credit in the Academic Policies section of this catalog.

The Extension Advisory Service offers assistance in planning long- or short-term study through Extension. The office is located in 114 UCLA Extension Building, 10995 Le Conte Avenue, (310) 206-6201. See <http://www.uclaextension.edu>.

To obtain the current *UCLA Extension Catalog*, request a copy at the website above or contact the Registration Office at (310) 825-9971.

UCLA INTERNATIONAL INSTITUTE

The UCLA International Institute comprises more than 20 multidisciplinary research centers that focus on major regions of the world and on global issues that cut across regional boundaries. The institute serves as the focal point for international research and teaching at UCLA. It also coordinates formal agreements concerning student exchange and research collaboration with foreign universities.

The U.S. Department of Education has recognized the institute's excellence in area studies by designating National Resource Centers in East Asia, Europe, Latin America, Near East, and Southeast Asia, and the National Heritage Language Research Center. The Asia Institute acts as a catalyst for interdisciplinary teaching and research among six specialized Asian studies centers. The Burkle Center for International Relations fosters research and promotes discussion on relevant topics of international relations, U.S. foreign policy, global, political, military, and economic matters, and international law and dispute resolution. All of the centers have formed extensive scholarly alliances with institutions of higher education around the world.

The institute is also home to the Fulbright Program for Greater Los Angeles, which hosts international Fulbright scholars and introduces them to the community. The International Visitors Bureau serves as a liaison between UCLA and international academic and professional leaders while hosting more than 500 visitors each year in programs that incorporate the intellectual, cultural, ethnic, and linguistic diversity of the campus and greater Los Angeles. The Center for World Languages provides research that enhances foreign language teaching, learning, and testing to meet student, academic, and professional needs and serves local, national, and international agencies in the

design, implementation, and evaluation of programs dedicated to modern language education. See <http://www.international.ucla.edu> or call (310) 825-4811.

RESEARCH PROGRAMS

At any given time, more than 5,000 funded research programs are in progress at UCLA. For information on any of the programs listed below, see <http://www.research.ucla.edu/labs/>.

ORGANIZED RESEARCH UNITS

Organized Research Units (ORUs) are campuswide research programs. Members come from more than one department and normally from more than one school, college, or division.

BRAIN RESEARCH INSTITUTE

The Brain Research Institute (BRI) has one of the largest programs for neuroscience research and education in the country, with nearly 300 scientists from 26 departments involved in every aspect of neuroscience research from molecular organization to human behavior. The BRI provides facilities with new technologies for research and training and sponsors affinity groups, conferences, and symposia to strengthen ties among neuroscientists. Public service activities include an elementary school outreach program and a joint educational program with UCLA Extension. See <http://www.bri.ucla.edu> or call (310) 825-5061.

CENTER FOR EUROPEAN AND EURASIAN STUDIES

The Center for European and Eurasian Studies (CEES) develops and coordinates teaching and research on Russia and the successor states of the former Soviet Union, as well as the countries of western Europe, through conferences, lectures, seminars, and academic exchange programs with European and Russian institutions. It also offers an interdepartmental undergraduate major and provides fellowships to graduate students in European area studies. See <http://www.international.ucla.edu/euro/> or call (310) 825-4060.

CENTER FOR MEDIEVAL AND RENAISSANCE STUDIES

The Center for Medieval and Renaissance Studies (CMRS) supports the research activities of some 140 faculty members in 28 academic disciplines dealing with the development of civilization between A.D. 300 and 1650. Programs include appointing visiting professors, organizing conferences, and supporting departments in inviting lecturers. The center sponsors two journals, *Viator*, with emphasis on intercultural and interdisciplinary studies, and *Comitatus*, with articles by graduate students and recent Ph.D. graduates. See <http://www.cmrs.ucla.edu> or call (310) 825-1880.

The Center for Medieval and Renaissance Studies supports research in 28 academic disciplines dealing with development of civilization between A.D. 300 and 1650.



CENTER FOR SEVENTEENTH- AND EIGHTEENTH- CENTURY STUDIES

The Center for Seventeenth- and Eighteenth-Century Studies organizes scholarly programs and workshops, publishes conference results, provides long- and short-term fellowships to students and scholars, offers graduate research assistantships and master classes, and organizes public programs and classical music concerts. See <http://www.c1718cs.ucla.edu> or call (310) 206-8552.

The center administers the William Andrews Clark Memorial Library, located 13 miles from UCLA, which specializes in seventeenth- and eighteenth-century British works. It also has a renowned collection centering on Oscar Wilde and his era and significant holdings of modern fine printing and Western Americana. See <http://www.humnet.ucla.edu/humnet/clarklib/> or call (323) 731-8529.

The Clark Library's renowned collection centers on Oscar Wilde and his era.



CENTER FOR THE STUDY OF WOMEN

The Center for the Study of Women (CSW) draws on the expertise of more than 245 faculty members from 10 professional schools and 34 departments. To facilitate faculty research, the center organizes conferences and lecture series on feminist theory, administers research grants, and offers an affiliation for research and visiting scholars. The center sponsors working groups, produces calendar of events posters, and hosts graduate programs, as well as an annual graduate student research conference. See <http://www.csw.ucla.edu> or call (310) 825-0590.

COTSEN INSTITUTE OF ARCHAEOLOGY

The Cotsen Institute of Archaeology studies and seeks to understand the human past through artifacts, analysis of field data, and the creation of archives. The institute, the only one of its kind in the U.S., coordinates facilities for more than 30 researchers and many graduate students and volunteers in 11 associated academic departments. Facilities include the Ceramics Research Group, Computer Imaging of Archaeological Data, Lithic Analysis Research Group, Moche Archive, Rock Art Archive, and many laboratories such as the Channel Islands Laboratory, East Asian Laboratory, Human Origins Laboratory, and Zooarchaeology



Laboratory. It publishes the findings of scholars from UCLA and other archaeology centers and provides a forum for the public presentation of archaeological discoveries and advances. See <http://www.ioa.ucla.edu> or call (310) 206-8934.

The Cotsen Institute of Archaeology is the only one of its kind in the U.S. and coordinates academic facilities for more than 40 researchers.

CRUMP INSTITUTE FOR MOLECULAR IMAGING

The Crump Institute for Molecular Imaging (CIMI) brings together physical, biomathematical, chemical, biological, and clinical scientists and students to merge the principles of imaging with those of molecular and cellular biology, genetics, and biochemistry. The imaging domains range from the molecular organization of viruses and cellular subunits to the biological processes of organ systems in the living human. A major focus is

the development and use of imaging technologies to collect, analyze, and communicate biological data. The institute has research and educational programs for visiting scientists, postdoctoral scholars, and Ph.D. graduate students that include the development of multimedia computer-based learning technologies. See <http://www.crump.ucla.edu> or call (310) 825-6539 or 825-4903.

DENTAL RESEARCH INSTITUTE

The Dental Research Institute (DRI) fosters professional training and public education as it focuses on the basic mechanisms of disease in the orofacial region. Members include scientists in molecular biology, immunology, virology, biochemistry, pharmacology, pathology, genetics, developmental biology, neurobiology, and neurophysiology. Research includes molecular oncology, viral oncology, molecular mechanisms of periodontal diseases, dental implantology, orofacial pain, neuroimmunology, molecular immunology, HIV immunology, and wound repair. The DRI contributes to educational activities in the form of quarterly seminars in the UCLA Center for the Health Sciences. See <http://www.dentistry.ucla.edu:8000/Dentistry/research/research-centers-and-institutes> or call (310) 206-3048.

GUSTAVE E. VON GRUNEBaum CENTER FOR NEAR EASTERN STUDIES

The von Grunebaum Center for Near Eastern Studies (CNES) coordinates research and academic programs related to the Near East. It administers the degree programs in Middle Eastern and North African Studies and in Islamic Studies. Resources of the center include the largest faculty, one of the most comprehensive library holdings, and the richest variety of Near and Middle Eastern studies courses of any institution in the Western Hemisphere. The center conducts publication, community outreach, and scholarly exchange programs. See <http://www.international.ucla.edu/cnes/> or call (310) 825-1181.

INSTITUTE OF AMERICAN CULTURES

The Institute of American Cultures (IAC) oversees four ORUs associated with UCLA ethnic studies centers. Applying the University's capabilities to the analysis and solution of social issues, the institute makes funds available for research and fellowships and promotes the study and illumination of the histories of African Americans, American Indians, Asian Americans, and Chicanas/Chicanos. See <http://www.gdnet.ucla.edu/iacweb/iachome.htm> or call (310) 206-9791.

Ralph J. Bunche Center for African American Studies

The Bunche Center for African American Studies conducts and sponsors research on the African American experience, coordinates the Afro-American studies curriculum, publishes research results, and sponsors community service programming. See <http://www.bunche.ucla.edu/newsite/index.html> or call (310) 825-7403.

American Indian Studies Center

The American Indian Studies Center (AISC) serves as an educational and research catalyst and includes a library,

postdoctoral fellowship programs, a publishing unit that produces books and a quarterly journal, and a student/community relations unit. See <http://www.aisc.ucla.edu/default.shtml> or call (310) 825-7315.

Asian American Studies Center

The Asian American Studies Center (AASC) seeks to increase the knowledge and understanding of the experiences of Asian and Pacific Islander peoples in America and promotes the development of material resources related to Asian American studies. The center includes a library, publications unit, student/community projects unit, and postdoctoral fellowships. See <http://www.aasc.ucla.edu> or call (310) 825-2974.

Chicano Studies Research Center

The Chicano Studies Research Center (CSRC) promotes the study and dissemination of knowledge on the experience of the people of Mexican descent and other Latinos in the U.S. The center supports interdisciplinary and collaborative research and the analysis, understanding, and articulation of issues critical to the development of Chicano and Latino communities in the U.S. It seeks to establish and maintain relationships with communities with similar academic and research interests at the state, national, and international levels. The center also includes a library, academic press, and grant fellowship programs. See <http://www.chicano.ucla.edu> or call (310) 825-2363.

INSTITUTE OF GEOPHYSICS AND PLANETARY PHYSICS

The Institute of Geophysics and Planetary Physics (IGPP) is a multicampus research unit of the University of California; the branch at UCLA researches climate dynamics, geophysics, geochemistry, space physics, biochemistry, and biology. Research topics include the nature of the Earth, moon, and other planetary bodies; global and regional environmental change; the origin of terrestrial life; dynamical properties of the sun and solar wind; and the nonlinear dynamics of complex systems. Facilities include analytical laboratories in geochemistry, meteoritics, glaciology, petrology, geochronology, archaeology, and the origins of life; laboratories for experiments in fluid dynamics and high-pressure physics; developmental laboratories for instrumentation in space physics and seismology; and computational laboratories for large-scale numerical modeling. See <http://www.igpp.ucla.edu> or call (310) 206-2285.

INSTITUTE FOR RESEARCH ON LABOR AND EMPLOYMENT

The interdisciplinary research program of the Institute for Research on Labor and Employment (IRLE) studies employment relationships, including labor markets, labor law, labor and management relations, equal employment opportunity, occupational safety and health, and related issues. Its Center for Labor Research and Education offers social policy and employment relations programs to the public, unions, and management. The academic unit of the institute oversees the Labor and Workplace Studies minor. See <http://www.irlle.ucla.edu> or call (310) 794-5957.

INSTITUTE FOR SOCIAL RESEARCH

The Institute for Social Research (ISR) promotes interdisciplinary research on contemporary sociological, psychological, political, and economic problems and community issues. Research components include the California Social Science Experimental Laboratory, Center for American Politics and Public Policy, Center for Social Theory and Comparative History, Center for the Study of Race, Ethnicity, and Politics, Center for the Study of Urban Poverty, Center on the Everyday Lives of Families, North American Integration and Development Center, and Social Science Data Archive. Training in survey research methodology is available to students through participation in the annual Los Angeles County Social Survey. The institute publishes the *ISR Working Papers in the Social Sciences*. See <http://www.isr.ucla.edu> or call (310) 825-0711.

INTELLECTUAL AND DEVELOPMENTAL DISABILITIES RESEARCH CENTER

The Intellectual and Developmental Disabilities Research Center (IDDRC) provides laboratories and training in intellectual and developmental disabilities. Interdisciplinary activities range from anthropological studies to molecular aspects of inherited metabolic diseases. See <http://www.mrrc.npi.ucla.edu/iddrc/home.aspx> or call (310) 825-9395.

JAMES S. COLEMAN AFRICAN STUDIES CENTER

The Coleman African Studies Center (JSCASC) coordinates research and teaching on Africa in the humanities, social sciences, and natural sciences, as well as in the schools of Arts and Architecture, Education and Information Studies, Law, Medicine, Public Affairs, Public Health, and Theater, Film, and Television. The center sponsors public lectures, seminars, publications, and academic exchanges with African institutions and an outreach service to the Southern California community. See <http://www.international.ucla.edu/africa/> or call (310) 825-3686.

JULES STEIN EYE INSTITUTE

The Jules Stein Eye Institute (JSEI) is one of the best equipped centers for research and treatment of eye diseases in the world. This comprehensive facility is dedicated to the preservation of vision and prevention of blindness, the care of patients with eye disease, and education in the broad field of ophthalmology. Outpatient, inpatient, and surgical facilities are provided. See <http://www.jsei.org> or call (310) 825-5053.

The Doris Stein Eye Research Center houses clinical facilities as well as new research and training programs concentrating on major eye diseases worldwide.

LATIN AMERICAN INSTITUTE

The Latin American Institute is a major regional, national, and international resource on Latin America and hemispheric issues. The institute sponsors and coordinates research, academic and public programs,

The Jules Stein Eye Institute is one of the best equipped centers for research and treatment of eye diseases in the world.

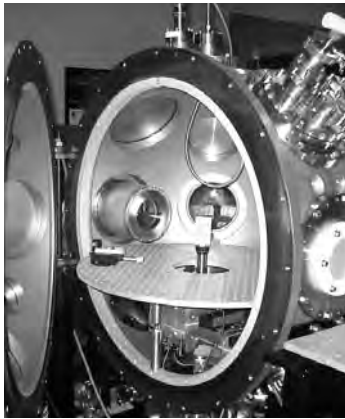


and publications on Latin America in the humanities, social sciences, and professional schools and links its programs and activities with developments in the field and in other institutional settings. By combining instruction, research, and service and by encouraging multidisciplinary and interdisciplinary approaches, the institute promotes the use of UCLA Latin American resources for the benefit of the campus, the broader community, and the public at large. See <http://www.international.ucla.edu/lai/> or call (310) 825-4571.

MOLECULAR BIOLOGY INSTITUTE

The Molecular Biology Institute (MBI) promotes molecular biology research and teaching at UCLA, with emphasis on genomics, proteomics, and chemical biology. The institute houses the laboratories of 30 MBI members and the Institute for Genomics and Proteomics, as well as the administration of the Molecular Biology Interdepartmental Ph.D. Program and the UCLA ACCESS to Programs in the Molecular, Cellular, and Integrative Life Sciences. See <http://www.mbi.ucla.edu> or call (310) 825-1018.

At any given time, over 5,000 funded research programs are in progress at UCLA.



PLASMA SCIENCE AND TECHNOLOGY INSTITUTE

The Plasma Science and Technology Institute (PSTI) is dedicated to research of plasma physics, fusion energy, and the application of plasmas in other disciplines. Students, professional research staff, and faculty members study basic laboratory plasmas, plasma-fusion confinement experiments, fusion engineering and nuclear technology, computer simulations and the theory of plasmas, space plasma physics and experimental simulation of space plasma phenomena, advanced plasma diagnostic develop-

ment, laser-plasma interactions, and the use of plasma in applications ranging from particle accelerators to the processing of materials and surfaces used in microelectronics or coatings. See <http://www.physics.ucla.edu/psti/> or call (310) 825-4789.

UCLA-DOE LABORATORY OF STRUCTURAL BIOLOGY AND MOLECULAR MEDICINE

The UCLA-DOE Laboratory of Structural Biology and Molecular Medicine (LSBMM), funded through a Department of Energy contract, conducts research in molecular nuclear medicine and structural biology and genetics. Laboratory faculty members have joint appointments in academic departments and teach at both undergraduate and graduate levels. Major facilities include a biomedical cyclotron, advanced scanning equipment, nuclear magnetic resonance, protein expression, and X-ray crystallography facilities. See <http://www.doe-mbi.ucla.edu/overview/overview/> or call (310) 825-3754.

SPECIALIZED RESEARCH CENTERS, LABORATORIES, AND INSTITUTES

Additional research centers, laboratories, and institutes advance scholarship in all fields. The breadth of research conducted on campus is reflected in undertakings as diverse as the Center for Astrobiology ([http://](http://www.astrobiology.ucla.edu)

www.astrobiology.ucla.edu)—which is developing new strategies for Mars exploration—and the Jonsson Comprehensive Cancer Center (<http://www.cancer.ucla.edu>)—one of only 40 comprehensive centers in the nation. For a list of research centers, laboratories, and institutes, see <http://www.research.ucla.edu/labs/>.

Interdisciplinary activities in the social sciences include the nationally respected UCLA Anderson Forecast (<http://www.uclaforecast.com>) in UCLA's John E. Anderson Graduate School of Management and the Center for Study of Evaluation and the National Center for Research on Evaluation, Standards, and Student Testing (<http://www.cse.ucla.edu>) in the Graduate School of Education and Information Studies, which are at the forefront of efforts to improve the quality of education and learning in America.

In the health sciences, research ranges from improving the quality of life for Alzheimer patients and caregivers at the UCLA Alzheimer's Disease Center (<http://www.adc.ucla.edu>) to epidemiology, immunology, and the clinical management of AIDS at the UCLA AIDS Institute (<http://www.uclaidsinstitute.org>) and the Center for Clinical AIDS Research and Education (<http://www.uclacarecenter.com>). The Fernald Child Study Center (<http://www.psych.ucla.edu/center-and-programs/fernal-child-study-center/>) focuses on the study and treatment of a variety of childhood behavioral problems and learning disorders.

In the physical sciences and engineering, the Institute for Pure and Applied Mathematics (<http://www.ipam.ucla.edu>) makes connections between a wide spectrum of mathematicians and scientists and broadens the range of applications in which mathematics is used. The UCLA Logic Center (<http://www.logic.ucla.edu>) fosters teaching and research in logic, broadly understood to include all areas of mathematical and philosophical logic, as well as the applications of logic to philosophy, linguistics, and computer science. On other frontiers, the Center for Embedded Networked Sensing (<http://research.cens.ucla.edu>), a National Science Foundation Science and Technology Center, develops embedded networked sensing systems to monitor and collect information on plankton colonies, endangered species, soil and air contaminants, medical patients, and buildings, bridges, and other man-made structures.

The Center for the Study of Urban Poverty (<http://www.sscnet.ucla.edu/issr/csup/index.php>) initiates new research on issues related to urban poverty and sponsors seminars in the field. The Center for Policy Research on Aging (<http://www.publicaffairs.ucla.edu/content/center-policy-research-aging>) addresses the significant issues of an aging society through policy analysis, dissemination of information, and technical assistance to the public and private sectors.

SUPPORTING RESOURCES

As UCLA students and scholars advance knowledge, illuminate the past, shape the present, and uncover the future, they rely on resources that support their endeavors in all fields. From a top-rated library to outdoor nature reserves, the campus is well-equipped to meet diverse scholastic needs.

ART GALLERIES AND MUSEUMS

The leading arts and cultural center in the West, UCLA museums, galleries, and gardens provide eclectic resources ranging from the ancient to the avant-garde.

FOWLER MUSEUM AT UCLA

The Fowler Museum at UCLA is internationally known for the quality of its collections, which encompass the arts and material culture of much of the world, with particular emphasis on West and Central Africa, Asia and the Pacific, and the Americas, past and present. It supports UCLA instruction and research and sponsors major exhibitions, lecture programs, and symposia. The museum is open to the public Wednesday through Sunday. For more information on hours and admission, see <http://www.fowler.ucla.edu> or call (310) 825-4361.

GRUNWALD CENTER FOR THE GRAPHIC ARTS

Housed in the UCLA Hammer Museum, the Grunwald Center for the Graphic Arts holds a distinguished collection of over 45,000 prints, drawings, photographs, and artists' books, including nearly 10,000 works from the prestigious Armand Hammer Daumier and Contemporaries Collection. A study and research facility for the benefit of students and the community, the center's permanent holdings include significant European and American examples from the fifteenth century to the present. It is particularly noted for its collection of German Expressionist prints and works on paper by Matisse and Picasso, as well as the Richard Vogler Cruikshank Collection and the Frank Lloyd Wright Collection of Japanese prints. The center is open only by appointment. See http://hammer.ucla.edu/collections/detail/collection_id/5 or call (310) 443-7078.

FRANKLIN D. MURPHY SCULPTURE GARDEN

Situated on a picturesque five-acre expanse that spans the heart of north campus, the Murphy Sculpture Garden contains a collection of over 70 major works by Rodin, Matisse, Calder, Arp, Falkenstein, Lachaise, Lipchitz, Moore, Miró, Hepworth, Noguchi, and many other late nineteenth- and early twentieth-century masters. All works in this distinguished collection are private gifts to the University. Tours may be arranged. See http://hammer.ucla.edu/collections/detail/collection_id/6 or call (310) 443-7041.

NEW WIGHT GALLERY

The New Wight Gallery is an exhibit space for visual arts, including student and faculty exhibitions. The gallery is housed in 1100 Broad Art Center, (310) 825-0557. See <http://www.art.ucla.edu/gallery/index.html>.

UCLA HAMMER MUSEUM

The UCLA Hammer Museum regularly presents its collection of Impressionist and Post-Impressionist paintings by such artists as Monet, Pissarro, Sargent, Cassatt, and Van Gogh. The museum organizes and presents major changing exhibitions devoted to examinations of historical and contemporary art in all periods. Cultural programming, including children's performance and storytelling series, music, poetry readings,

and lunchtime art talks, are presented throughout the week. For information on programming, hours, and docent tours, see <http://hammer.ucla.edu> or call (310) 443-7000.

LIBRARIES

The UCLA Library, a campuswide network of libraries serving programs of study and research in many fields, is among the top 10 ranked research libraries in the U.S. The total collections number more than eight million volumes, and nearly 80,000 serial titles are received regularly.

Reference librarians are available in all library units to answer questions about using online systems and to provide assistance with reference and research topics.

Students locate and identify materials through the library's web-based online information systems. The UCLA Library Catalog contains records for all UCLA Library holdings and other campus collections, including the Archive Research and Study Center of the Film and Television Archive, Chicano Studies Research Center Library, Ethnomusicology Archive, Institute for Social Research Data Archives Library, Instructional Media Collections and Services, and William Andrews Clark Memorial Library. It also provides library item location and circulation status.

Other available catalogs include the UC Libraries Catalog (Melvyl), WorldCat, RLG Union Catalog, numerous abstracting and indexing databases, and gateways to other systems. The Melvyl Catalog contains information on library holdings at all 10 UC campuses.

While continuing to develop and manage collections of traditional printed materials, the UCLA Library also makes a number of digital resources available for campus use through the library site. These include College Library electronic reserves and electronic journals, texts, reference resources, periodical indexes, and abstracts. See <http://www.library.ucla.edu>.

ARTS LIBRARY

Housed in the Public Affairs Building, the Arts Library collects material on architecture, architectural history, art, art history, design, film, television, photography as fine art, studio art, and theater. It also contains the Elmer Belt Library of Vinciana, a special collection of rare books and incunabula about Leonardo da Vinci and related materials in Renaissance studies. Performing Arts Special Collections contain noncirculating materials, including the Artists' File, archival records of major Southern California motion picture studios and television production companies, scripts from film, television, and radio, animation art, personal papers of writers, directors, and producers, photographs and production stills, posters, lobby cards, press kits, and West Coast theater playbills. See <http://www.library.ucla.edu/libraries/arts/index.cfm> or call (310) 825-3817 or 206-5425.

The Fowler Museum is known for its collections of arts and culture focusing on West and Central Africa, Asia and the Pacific, and the Americas.



The Grunwald Center for the Graphic Arts holds over 45,000 prints, drawings, and photographs and artists' books from the Renaissance to the present.

CHARLES E. YOUNG RESEARCH LIBRARY

The Young Research Library primarily serves graduate research in the humanities, social sciences, education, public affairs, government information, and maps. Most of its collections are arranged in open stacks. The building also houses reference, circulation, graduate reserve, and periodicals services and the Microform and Media Service, with microcopies of newspapers, periodicals, and other materials. The Department of Special Collections contains rare books and pamphlets, primarily in the humanities, social sciences, and visual arts, from the fifteenth to twentieth century, University Archives, early maps and atlases, early California newspapers, manuscript collections, transcripts of oral history, ephemera, microfilm, tape recordings, prints, paintings, and drawings, including original architectural drawings. See <http://www.library.ucla.edu/libraries/researchlibrary/index.cfm> or call (310) 825-4732 or 825-1323.

The UCLA Library is among the top research libraries in the U.S.

**COLLEGE LIBRARY**

The College Library, located in the Powell Library Building, features collections and services in support of the undergraduate curriculum in the humanities, social and physical sciences, and mathematics. Course reserve materials, including books, articles, audiotapes, homework solutions, lecture notes, and Academic Publishing Service Readers, are available for loan. The College Library Instructional Computing Commons, located on the first floor of Powell Library, provides students with access to computers and multimedia equipment, and Night Powell provides study space in a late-night reading room. See <http://www.library.ucla.edu/libraries/college/index.cfm> or call (310) 825-1938 or 825-9389.

EUGENE AND MAXINE ROSENFELD MANAGEMENT LIBRARY

Located in the John E. Anderson Graduate School of Management complex, the Rosenfeld Management Library houses materials on accounting information systems, arts management, business history, corporate history, entrepreneurship, finance, general management and management theory, industrial relations, international and comparative management, management information systems, management strategy and policy, marketing, operations, research, production and operations management, public/not-for-profit management, and real estate. See <http://www.anderson.ucla.edu/library.xml> or call (310) 825-3138.

HUGH AND HAZEL DARLING LAW LIBRARY

The Darling Law Library collects published case decisions, statutes, and codes of the federal and state governments of the U.S. and other common law jurisdictions, legal treatises and periodicals in Anglo-American and international law, and appropriate international and comparative law holdings. The Law Library reports to the dean of the School of Law and contains over 580,000 bound volumes. See <http://www.law.ucla.edu/home/index.asp?page=11> or call (310) 825-4743 or 825-6414.

LOUISE M. DARLING BIOMEDICAL LIBRARY

The Darling Biomedical Library, located in the Center for the Health Sciences, serves all the UCLA health and sciences departments and schools and the UCLA Medical Center. Its collections focus on materials related to medicine, nursing, dentistry, public health, physiological sciences, biology, molecular biology, biochemistry, zoology, plant sciences, psychology, and life sciences, as well as rare works in the history of health and life sciences, botanical illustration, and Arabic and Persian medical manuscripts. It contains over 659,000 print volumes and 3,170 journal subscriptions. See <http://www.library.ucla.edu/libraries/biomed/index.cfm> or call (310) 825-4904.

MUSIC LIBRARY

The collections of the Music Library in the Schoenberg Music Building include books, music scores, sheet music, video and sound recordings, microforms, and interactive media on Western music history and criticism; world music styles, cultures, and traditions; and music theory, aesthetics, philosophy, and organology. It also houses the Archive of Popular American Music, a special collection of published and manuscript sheet music, recordings, and related materials. Performing Arts Special Collections include rare printed and manuscript books, scores, and opera librettos; personal papers of prominent Southern California composers, performers, and writers on music; and archives of film, television, and radio music. See <http://www.library.ucla.edu/libraries/music/index.cfm> or call (310) 825-4882 or 825-1353.

RICHARD C. RUDOLPH EAST ASIAN LIBRARY

Located in the Young Research Library, the Rudolph East Asian Library collects Chinese, Japanese, and Korean language materials in the humanities and social sciences. The collection is particularly strong in Japanese Buddhism, religion, Chinese and Japanese fine arts, Chinese archaeology, premodern history and classical literature on both China and Japan, and Korean literature and religion. See <http://www.library.ucla.edu/libraries/eastasian/index.cfm> or call (310) 825-1401.

SCIENCE AND ENGINEERING LIBRARY

The Science and Engineering Library (SEL) collections on engineering, mathematics, and the physical sciences are housed in three separate locations. SEL/Chemistry in Young Hall houses materials on chemistry, biochemistry, and molecular biology; solid-state, elementary particle, high-energy, mathematical, nuclear, and plasma physics; acoustics; spectroscopy; optics; and astrophysics. SEL/Engineering and Mathematical Sciences in Boelter Hall houses materials on aeronautics, astronomy, and atmospheric sciences; bioengineering; chemical, civil, electrical, environmental, manufacturing, mechanical, and nuclear engineering; computer science and electronics; energy technology; mathematics; metals and materials; pollution; and statistics. SEL/Geology-Geophysics in the Geology Building houses materials on geology, geophysics, geochemistry, space physics, planetary science, regional geology, paleobiology, micropaleontology, invertebrate paleontology, ore deposits, geomorphology, hydrology, and chemical oceanography. See <http://www.library.ucla.edu/libraries/sel/index.cfm> or call (310) 825-4951 or 825-3982.

SPECIAL ARCHIVES AND COLLECTIONS

In addition to the extensive collections of the University Library, a rich array of other information resources is independently managed by individual UCLA departments and centers.

CULTURAL CENTER COLLECTIONS

The Bunche Center for African American Studies Library and Media Center (<http://www.bunche.ucla.edu/newsite/index.html#>) contains materials reflecting the African American experience in the social sciences, arts, and humanities. The American Indian Studies Center Library (<http://www.aisc.ucla.edu/lib/aisclibrary.shtml>) houses a collection on American Indian life, culture, and state of affairs in historical and contemporary perspectives, while the Asian American Studies Center Reading Room/Library (<http://www.aasc.ucla.edu/library/default.asp>) features Asian and Pacific Island American resources.

Materials related to Chicano and Latino cultures are housed in the Chicano Studies Research Center Library (<http://www.chicano.ucla.edu/library/default.asp>), and the William Andrews Clark Memorial Library (<http://www.humnet.ucla.edu/humnet/clarklib/>) contains rare books, manuscripts, and other noncirculating materials on English culture (1641 to 1800). The English Reading Room (<http://www.english.ucla.edu/resources/err/>) features a noncirculating collection of British and American literature, literary history, and criticism.

INSTRUCTIONAL MEDIA COLLECTIONS AND SERVICES AND LABORATORY

The Instructional Media Collections and Services, located in the Powell Library Building, is UCLA's central resource for the collection and maintenance of educational and instructional media. Materials from the collection are loaned to regularly scheduled UCLA classes and may be rented by organizations and individuals from the campus community and beyond. Staff members monitor compliance with University guidelines and federal copyright law governing the use of video recordings. Reference books from educational and feature film distributors are available. Staff members assist in researching media on any subject and obtaining materials from outside sources. See <http://www.oid.ucla.edu/units/imcs/> or call (310) 825-0755.

The Instructional Media Laboratory provides access to course- or textbook-related audio, interactive, and videotape programs. Students, assigned by faculty to study specific supplementary materials, may learn at their own pace and time. See <http://www.oid.ucla.edu/units/imlab/> or call (310) 206-1211.

UCLA FILM AND TELEVISION ARCHIVE

The UCLA Film and Television Archive is the world's largest university-based collection of motion pictures and broadcast programming. The archive's holdings of over 220,000 original film and television materials serve both the UCLA community and national and international constituencies.

The Motion Picture Collection is the country's largest collection after the Library of Congress. Among its

outstanding collections are 27 million feet of Hearst Metrotone News film dating back to 1919. Other noteworthy holdings include studio print libraries from Twentieth Century-Fox, Paramount, Warner Brothers, Sony/Columbia, Republic, RKO, New World Pictures, and Orion. Special collections document the careers of William Wyler, Hal Ashby, Tony Curtis, Rosalind Russell, Stanley Kramer, Cecil B. DeMille, Harold Lloyd, Charlton Heston, Rock Hudson, and other persons of prominence in the American film industry.

The Television Collection is the nation's largest university-based collection of television broadcast materials. Its titles include kinescopes, telefilms, and videotapes spanning television history from 1946 to the present, with emphasis on drama, comedy, and variety programming. A special collection of over 100,000 news and public affairs programs is also maintained.

The archive's exhibition program presents evening screenings and discussions that focus on archival materials, new work by independent filmmakers, and an array of international films. See <http://www.cinema.ucla.edu> or call (310) 206-8013.

The Archive Research and Study Center (ARSC) in the Powell Library Building (310-206-5388) provides on-site viewing of the Film and Television Archive's collections and research consultation to students, faculty, and researchers.

OTHER COLLECTIONS

The Ethnomusicology Archive (<http://www.ethnomusic.ucla.edu/archive/>) houses sound and audiovisual recordings of folk, ethnic, and non-Western classical music, while the Institute for Social Research Data Archives Library (<http://www.isr.ucla.edu/data-archives/> or <http://www.issr.ucla.edu/da/>) contains a collection of statistical databases for the social sciences. The UCLA Lab School Gonda Family Library (<http://www.labschool.ucla.edu/learning/library/>) features contemporary materials for children from kindergarten through junior high school and adult works on children's literature.

COMPUTER SUPPORT

The exciting pace of computer technology demands an environment where information systems are recognized as a strategic requirement with a strong focus of attention, and where there is a solid technology foundation already in place. UCLA provides that environment and ensures hardware, software, and training to support research and study.

ACADEMIC TECHNOLOGY SERVICES

Academic Technology Services (ATS) provides resources and services that support the UCLA distributed computing environment. Through its five service areas ATS seeks to facilitate cross-departmental information technology initiatives, provide specialized resources to faculty members and students in pursuit

The Film and Television Archive contains 220,000 original film and TV holdings, including millions of feet of Hearst Metrotone News film dating back to 1919.



The Ethnomusicology Archive includes recordings and a vast collection of musical instruments from many non-Western countries.

of their research and instructional goals, and leverage the volume purchasing power of the University. See <http://www.ats.ucla.edu> or call (310) 825-6635.

Training and consulting services include classes and online seminars in statistical applications, high-performance computing, scientific visualization, and geographic information systems. See <http://www.ats.ucla.edu/classes/> or call (310) 825-7431.

Through Software Central, ATS informs the UCLA community of software available at educational or special volume discounts and provides technical support for many applications. See <http://www.softwarecentral.ucla.edu> or call (310) 206-4780.

RESEARCH COMPUTING TECHNOLOGIES

Research Computing Technologies offers integrated services to faculty members. Areas of expertise include technical and administrative grant development support; storage and management tools for research and instructional data; analysis and interpretation of complex data sets through statistical and visualization support; high-performance network consulting services for research; and high-performance computing through Beowulf clusters, consulting support for faculty to access the National Supercomputer Centers, and support for the development of central and local commodity-based Linux clusters. See <http://www.ats.ucla.edu/clusters/hpc/> or call (310) 206-7323.

DISABILITIES AND COMPUTING PROGRAM

The Disabilities and Computing Program (DCP) provides adaptive technology services and support to students, faculty, and staff with disabilities, to faculty who are working with students with disabilities, and to departments. The DCP also coordinates access to computers, local area networks, and online resources for people with disabilities. See <http://www.dcp.ucla.edu> or call (310) 206-7133 or 206-6004.

STUDENT COMPUTER LABORATORIES

Student laboratories are supported through Academic Technology Services and the College Library Instructional Computing Commons. See Student Services later in this chapter for information.

PARKS, RESERVES, AND NATURAL SCIENCE RESOURCES

The geography of Southern California is conducive to research in the natural sciences. The diverse region is a natural laboratory supported by numerous UCLA resources for study.

BIOLOGICAL COLLECTIONS

The Biological Collections of the Ecology and Evolutionary Biology Department include marine fishes from the Eastern Pacific and Gulf of California, and birds and mammals primarily from the Western U.S.,

Canada, Mexico, and Central America. The department also maintains a more limited collection of amphibians, reptiles, and fossil vertebrates. See <http://www.eeb.ucla.edu/dickey/> or call (310) 825-1282.

DIVISION OF LABORATORY ANIMAL MEDICINE

The Division of Laboratory Animal Medicine is responsible for the procurement, husbandry, and general welfare of animals required for teaching and investigative services. It also administers the veterinary medical and husbandry programs throughout the campus. See <http://www.dlam.ucla.edu> or call (310) 794-0161.

HANNAH CARTER JAPANESE GARDEN

One mile from the UCLA campus in Bel Air, the Japanese Garden provides a unique illustration of art and nature for courses such as landscape architecture, environmental design, East Asian studies, and art classes. The Kyoto-style terraced garden was designed by Japanese artisans using native plants and artifacts. Traditional features such as a teahouse, shrine, antique stone water basins, and a koi pond are enjoyed by faculty, students, school and community groups, and others. Visits are by reservation only. See <http://www.japanese.garden.ucla.edu> or call (310) 794-0320.

MARINE SCIENCE CENTER

The Marine Science Center coordinates marine-related teaching and research on campus and facilitates interdepartmental interaction of faculty members and students. UCLA offers one of the broadest interdisciplinary educational programs in marine sciences in the U.S. Field trips for marine-related courses and access to research sites in the Santa Monica Bay, Channel Islands, and the Southern California Bight are provided by UCLA's 68-foot research vessel *Sea World UCLA*. See <http://www.msc.ucla.edu> or call (310) 206-8247.

MILDRED E. MATHIAS BOTANICAL GARDEN

The Mathias Botanical Garden is a living museum with one of the most important botanical collections in the U.S. With specimens from all over the world, the seven-acre expanse on south campus specializes in tropical and subtropical plants, including some 5,000 species in 225 families. The botanical garden also has a research herbarium containing 180,000 dried plant specimens. School and community group tours are available as are individual guided tours. See <http://www.botgard.ucla.edu> or call (310) 825-1260.

STUNT RANCH SANTA MONICA MOUNTAINS RESERVE

The University of California founded the UC Natural Reserve System (NRS) in 1965 to preserve undisturbed natural areas representing the state's vast ecological diversity for students, teachers, and researchers from public and private educational institutions to use as outdoor classrooms and living laboratories. The Stunt Ranch Santa Monica Mountains Reserve, administered by the Los Angeles campus, officially joined the UC NRS in November 1995. The 310-acre site is a 40-minute drive from UCLA and includes fine examples of chaparral and oak woodland ecosystems.

The Japanese Garden is a Kyoto-style retreat.



The Botanical Garden offers thousands of plants for study and enjoyment.

The reserve lends itself to programs that focus on the natural ecosystems and issues of resource management in the urban/wildland interface. Undergraduate and graduate courses in the departments of Anthropology, Earth and Space Sciences, Ecology and Evolutionary Biology, Geography, Physics and Astronomy, and the Institute of the Environment utilize Stunt Ranch and other NRS sites. See <http://stuntranch.ucnrs.org> or call (310) 206-3887.

STUDENT SERVICES

Like a small city, UCLA has its own police department and fire marshal, an equivalent to the phone company, health center, corner restaurants, and shops. Hundreds of services for the campus community facilitate academic and personal endeavors.

SERVICES FOR STUDY

From academic advising to advanced computer support, UCLA services for study give students the tools they need to achieve academic success.

ACADEMIC COUNSELING

Many sources of academic counseling are available. Faculty advisers and counselors in the College and each school help students with major selection, program planning, academic difficulties, degree requirements, and petitions.

Advisers in each major department counsel undergraduates concerning majors offered and their requirements, and possible career and graduate school options (see Advising and Academic Assistance in the Undergraduate Study section of this catalog). In addition, special graduate advisers are available in each department to assist prospective and currently enrolled graduate students.

BRUIN ONLINE

Bruin OnLine (BOL) is the campus Internet service provider for UCLA students, faculty, and staff and a vehicle for accessing campus network communication services. Using BOL, students enroll in classes or access student records through URSA, check class availability in the *Schedule of Classes*, search the UCLA Library collections, access their Study Lists through MyUCLA, and connect to a range of campus events, programs, and services.

Bruin OnLine services include dial-up access to the campus backbone network and the Internet, e-mail accounts, and space for personal webpages. Wireless Internet access is available in select campus locations for BOL account holders. BOL Internet access software can be downloaded from the BOL website. Help desk services are available online, by telephone at (310) 267-4357, and at the BOL office in Kerckhoff Hall. See <http://www.bol.ucla.edu>.

COMPUTER LABORATORIES

Student laboratories are supported through Academic Technology Services (ATS) and the College Library Instructional Computing Commons (CLICC, <http://www.clicc.ucla.edu>), a collaborative effort between

ATS, Center for Digital Humanities (<http://www.humnet.ucla.edu/itc/resources/labs/>), Social Sciences Computing (<http://computing.sscnet.ucla.edu>), Office of Instructional Development, and College Library. Some 15 computer laboratories are available throughout the campus, each with computers, peripherals, software, and services that cater to specific areas of study. See the websites listed above for further information.

COURSE WEB PAGES

The Instructional Enhancement Initiative assures that all undergraduate nontutorial courses in the College of Letters and Science and the Henry Samueli School of Engineering and Applied Science provide an individual course website for faculty members, teaching assistants, and enrolled students. The sites facilitate the distribution of supplementary course materials, lecture notes, homework assignments, research links, and electronic communication, including virtual office hours and class bulletin boards for interactive question and answer sessions. Instructors decide which of these online capabilities are best suited to their course websites.

LECTURE NOTES AND COURSE READERS

For certain courses, students may subscribe to Lecture Notes, which publishes concise weekly summaries of about 100 lecture classes. See <http://www.uclaestore.com/ucla/outerweb/lecturenotes.asp> or call (310) 825-8016.

Academic Publishing provides custom course readers, obtaining 5,000 copyright authorizations each year. See <http://www.uclaestore.com/ucla/outerweb/academicpublishing.asp> or call (310) 825-2831.

MYUCLA

MyUCLA provides a portal to individual student information. Features include a personalized Study List showing classes and class information such as grades; a notifications section for important announcements; a subscriptions section to access online information from newspapers, journals, or magazines or from University departments, clubs, and organizations; a personal calendar; and links to UCLA online resources, including URSA, the *Schedule of Classes*, and *UCLA General Catalog*. WebMail provides students an intuitive way to access private e-mail accounts from any computer via MyUCLA.

Letters and Science students are able to obtain additional services, including the ability to view their counseling appointments, check the status of petitions, and track their honors progress. See <http://my.ucla.edu> or call (310) 206-4525.

UNIVERSITY RECORDS SYSTEM ACCESS

Through University Records System Access (URSA), UCLA students acquire academic, financial, and personal information from their University academic records and enroll in classes. URSA operates Sunday from 6 p.m. through Tuesday at 1 a.m. and Tuesday

Fifteen computer laboratories are available throughout the campus, many catering to specific areas of study.



through Saturday from 6 a.m. to 1 a.m., including holidays. See <http://www.ursa.ucla.edu>.

For most students, URSA provides the easiest way to gain real-time access to academic, financial, and personal records. The site is designed with an intuitive visual interface that walks students through the different steps of the procedure they are trying to accomplish, whether it be to check their billing accounts, change address information, view and print Study Lists or Degree Progress Reports (DPRs), or see term grades. URSA also provides a convenient way to enroll in classes, to verify enrollment appointment times, and to view real-time enrollment counts.

VETERANS AFFAIRS AND SOCIAL SECURITY SERVICES

The Veterans Affairs coordinator, 1113 Murphy Hall, (310) 825-5391, provides information for veterans and eligible dependents about veterans' educational benefits, tutorial assistance, and the work-study program; issues fee waivers to dependents of California veterans who are deceased or disabled because of service-connected injuries and who meet the income restrictions in Education Code Section 10652; and certifies student status for recipients of Social Security benefits.



SERVICES FOR HEALTH AND SAFETY

ARTHUR ASHE STUDENT HEALTH AND WELLNESS CENTER

The Ashe Student Health and Wellness Center in Westwood Plaza (310-825-4073) is an outpatient clinic for UCLA students. Most services are subsidized by registration fees, and a current BruinCard is required for service. Core (prepaid) services include visits, most procedures, X rays, and some laboratory procedures. Noncore (fee) services, such as pharmaceuticals, injections, orthopedic devices, and some laboratory procedures, are less costly than elsewhere. If students withdraw during a school term, all Ashe Center services continue to be available on a fee basis for the remainder of that term, effective from the date of withdrawal.

The cost of services received outside the Ashe Center, such as emergency room services, is each student's financial responsibility. Students are required to purchase supplemental medical insurance either through the UCLA-sponsored Graduate and Undergraduate Student Health Insurance Plans or other plans that provide adequate coverage. Adequate medical insurance is a condition of registration. See Registration in the Undergraduate Study and Graduate Study sections of this catalog.

Consult the Ashe Center website for specific information on its primary care, women's health, and men's health clinics, as well as on dental care which is available to students at discounted rates. See <http://www.studenthealth.ucla.edu>.

For emergency care when the Ashe Center is closed, students may obtain treatment at the UCLA Medical Center Emergency Room on a fee-for-service basis.

Services for mental health range from routine counseling and psychotherapy to crisis counseling.

MENTAL HEALTH SERVICES

Services for mental health range from routine counseling and psychotherapy to crisis counseling.

Counseling and Psychological Services

Counseling and Psychological Services (CAPS) offers short-term personal counsel and psychotherapy in 221 Wooden Center West, (310) 825-0768.

Psychologists, clinical social workers, and psychiatrists assist with situational stresses and emotional problems from the most mild to severe. These may include problems with interpersonal relationships, academic stress, loneliness, difficult decisions, sexual issues, anxiety, depression, or other concerns affecting the personal growth of students.

In addition, rape services consultants (RSCs)—individuals who provide information, support, and resources for members of the UCLA community who have been raped or sexually assaulted—can discuss options and alternatives, help identify and assist in contacting the most appropriate support services, and answer any questions that may arise.

Service is confidential and available to regularly enrolled students. Students are seen individually by appointment or may choose from a number of groups offered each term. Emergency and walk-in counseling is also available. See <http://www.counseling.ucla.edu>.

CAPS is also a designated Sexual Harassment Information Center, as well as a campus Harassment Information Center, available to all UCLA students (see Harassment in the Appendix for more information).

STUDENT SAFETY AND SECURITY

Dial 911 from any campus phone for police, fire, or medical emergencies. For nonemergency information, contact the UCLA Police Department. See <http://www.ucpd.ucla.edu> or call (310) 825-1491.

The police department provides a free Campus Escort Service every day of the year from dusk to 1 a.m. Uniformed community service officers (CSOs)—specially trained UCLA students—walk students, staff, faculty, and visitors between campus buildings, local living areas, or Westwood Village. See <http://map.ais.ucla.edu/go/1000806> or call (310) 794-WALK.

The free Evening Van Service provides a safe, accessible, and convenient mode of transportation around campus at night. Vans provide transportation between Ackerman Union, westside apartments, Lot 36, campus buildings, and residence halls. See <http://map.ais.ucla.edu/go/1001008> or call (310) 825-4774.

UCLA Sexual Violence Prevention and Education Services—including workshops, self-defense classes, counseling, and referrals—increase physical and psychological preparedness and heighten awareness of the complex issues of rape, sexual assault, and relationship violence. See <http://www.counseling.ucla.edu> or call (310) 825-0768.

Cardiopulmonary resuscitation (CPR) and basic emergency care courses are offered by the Center for



UCLA Emergency Numbers

Police, Fire, or Medical Emergency	911
UCLA Police Department (24 hours)	(310) 825-1491
UCLA Emergency Medi- cine Center (24 hours)	(310) 267-8400
Campus Escort Service (dusk to 1 a.m.)	(310) 794-WALK

Prehospital Care and can be organized most days and times. See <http://www.cpc.mednet.ucla.edu> or call (310) 267-5959.

The Office of Environment, Health, and Safety (EH&S) works to reduce workplace hazards on campus and to promote safety at all levels of the University community. EH&S is a consulting resource for UCLA departments and personnel who want to learn how to make the workplace safe. It handles requests for safety information and training, regulatory interpretation and applicability, approval for potentially hazardous procedures, resolution of safety problems, and surveillance and monitoring of persons and workplaces. See <http://www.ehs.ucla.edu> or call (310) 825-5689.

ASSOCIATED STUDENT SERVICES

Founded when UCLA opened in 1919, the Associated Students UCLA provides services to the campus community through student government, student media, and services and enterprises. Every registered UCLA student is a member of ASUCLA. See <http://www.asucla.ucla.edu>.

STUDENT GOVERNMENT

Many facets of student life at UCLA are sponsored or organized by student government. Getting involved in the decision-making process is rewarding and offers avenues of expression students may not find in other aspects of their university experience.

Graduate Students Association

The Graduate Students Association (GSA) is the official organization representing UCLA graduate and professional students in academic, administrative, campus, and statewide areas. GSA appoints or elects graduate student members to important campus organizations and committees from the Student Fee Advisory Committee to the committees of the Academic Senate. It sponsors various graduate student journals, programs, and social events, including the Melnitz Movies film program. See <http://gsa.asucla.ucla.edu> or call (310) 206-8512.

Undergraduate Students Association

Undergraduate student government is embodied in the Undergraduate Students Association (USA). Its governing body, the Undergraduate Students Association Council (USAC), is comprised of elected officers as well as appointed administrative, alumni, and faculty representatives. Every UCLA undergraduate is a member of USA.

The breadth of USA activities offers an invaluable service to the campus and surrounding communities and provides students the opportunity to participate in and benefit from these endeavors. For example, USA programs benefit both campus and community through programs to tutor youths and adults, address health needs of ethnic communities, combat poverty and homelessness, and better the environment.

Student government also supports approximately 20 student advocacy groups on campus from the African Student Union to the Vietnamese Student Union. See <http://students.asucla.ucla.edu>.

CAMPUS EVENTS

Each year approximately 40,000 students, faculty, and staff attend programs of the Campus Events Commission (CEC), including a low-cost film program, a speakers program, and performances by dozens of outstanding entertainers.

The Speakers Program brings entertainers, politicians, and literary figures to campus and presents two annual awards programs—the Jack Benny Award for comedic excellence and the Spencer Tracy Award for outstanding screen performance. Speakers and awardees have included notables as varied as Bill Gates, Whoopie Goldberg, and Tom Hanks.

The Concert Program brings new and name performing artists like Rage Against the Machine or A Tribe Called Quest to UCLA for free and affordably priced concerts. See <http://students.asucla.ucla.edu/cec/> or call (310) 825-1958.

The Cultural Affairs Commission sponsors art exhibits in the Kerckhoff Hall Art Gallery and the JazzReggae Festival. See <http://students.asucla.ucla.edu/cac/> or call (310) 825-6564.

PUBLICATIONS AND BROADCAST MEDIA

Publications and media provide a training ground for aspiring writers, journalists, photographers, and radio and television announcers while serving the communication needs of the campus community. Most publications offices are in Kerckhoff Hall. See <http://www.studentmedia.ucla.edu> or call (310) 825-2787.

Daily Bruin

The *Daily Bruin*, with a circulation of 15,000, is one of the largest daily newspapers in Los Angeles. As the principal outlet for campus news, the *Bruin* is published each weekday of the academic year (once a week during the summer) and is distributed free from kiosks around campus and local areas. Students work as reporters, editors, designers, photographers, and advertising sales representatives; new staff members are welcome. See <http://www.dailybruin.ucla.edu> or call (310) 825-9898.



Daily Bruin TV

Daily Bruin TV, the student-run television station, broadcasts over the campus cable network (channel 29)—available in the residence halls and select campus buildings—and the Internet at <http://www.dailybruin.com/video/>. It gives students an opportunity to

practice television-related skills and to provide information, entertainment, and a forum for the free expression and exchange of ideas to the UCLA community. Station facilities are in Kerckhoff Hall and Ackerman Union.

Newsmagazines

Seven print newsmagazines reflecting the diversity of the campus community are published each term. *Al-Talib*, *Fem*, *Ha'Am*, *La Gente de Aztlan*, *Nommo*, *Out-Write*, and *Pacific Ties* deal respectively with issues relevant to the Muslim; feminist; Jewish; Chicano, Latino, and Native American; African American; lesbian, gay, bisexual, and transgender; and Asian communities. Each includes news and features on political and cultural affairs both on and off campus. Prospective staffers are welcome.

Online Media

Student Media supports the Bruinwalk community portal website.



UCLAradio

UCLAradio broadcasts live over the Internet from <http://uclaradio.com> and features college alternative, hip-hop, jazz, and world music. It also covers select Bruin football, basketball, and baseball games and a lineup of sports talk shows. Studios are in Ackerman Union, (310) 825-6955; all positions, including on-air, news staff, and advertising representatives, are open to students.

UCLA Yearbook

The UCLA yearbook, *BruinLife*, is one of the largest student publication efforts on campus. Available each summer, it contains photographs and information on undergraduate students, graduating seniors, athletic teams, fraternities and sororities, and campus activities. Students who would like to participate may contact the yearbook staff. See <http://www.bruinlife.com> or call (310) 825-2640.

UCLA RESTAURANTS

ASUCLA operates more than a dozen restaurants and three coffee houses on campus, assuring a range of eating options from Italian to sushi. From the residence halls to the student union, a restaurant is never far. Hours vary, especially during summer and holidays. For hours and locations of all the restaurants, see <http://www.asucla.ucla.edu/restaurants/hours.asp>.

UCLA STORE

In terms of sales, the UCLA Store is the biggest college store in the nation. There are five locations on campus. Author signings, sales, and other special events are announced in the *Daily Bruin* or on the UCLA Store site. See <http://www.uclastore.com>.

The UCLA Store—Ackerman Union, (310) 825-7711, has eight departments. The Textbooks department carries required and recommended texts for most undergraduate and many graduate courses and operates a buyback service so students can sell used texts.

BookZone offers reference books and a wide selection of titles in literature, science, history, and technical disciplines, including the UCLA Faculty Authors section. The Computer Store carries personal computers, peripherals, accessories, and software at low academic prices. Essentials offers school and office supplies, including consumables for computer printers. Bear-Wear specializes in UCLA emblematic merchandise. Fast Track carries active sportswear for men and women, plus an extensive Clinique counter. Market is a convenience store, with snacks, health and beauty aids, gifts, greeting cards, and cut flowers.

UCLA Store—Health Sciences, <http://www.uclastore.com/uclahss/>, (310) 825-7721, specializes in books and supplies for students in dentistry, medicine, nursing, public health, and related areas. UCLA Store—Lu Valle Commons, (310) 825-7238, carries art supplies and books, as well as textbooks and supplies for all on-campus Extension courses and selected academic programs (architecture and urban design, art, design, film, information studies, law, management, public policy, social welfare, theater, urban planning). North Campus Shop, and Hill Top Shop in Sunset Village, are convenience store locations.

OTHER SERVICES AND ENTERPRISES

ASUCLA oversees a variety of other services ranging from a post office to a hair salon. Most are located in Ackerman Union.

Students preparing to graduate can use the Campus Photo Studio, <http://www.collegestore.org/ge2/portraits.asp>, (310) 206-8433, for their senior yearbook portraits. Graduation Etc., <http://www.uclastore.com/gradetc/index.html>, (310) 825-2587, sells and rents caps, gowns, and hoods for degree ceremonies and provides announcements, diploma mounting, and other graduation-related products and services.

On the lighter side, ASUCLA operates Game On, (310) 794-2122, with PC, Xbox 360, PS3, and Wii electronic games.

SERVICES FOR STUDENT LIFE

From housing to transportation, basic student needs are facilitated by services designed to enhance all aspects of student living.

ACCOMMODATIONS

The UCLA Housing website is the best guide for finding the right kind of accommodation for different lifestyles and budgets. It includes detailed information about the different residence options, dining plans, support and extracurricular programs, and an online housing application. See <http://www.housing.ucla.edu> or call (310) 206-7011.

On-Campus Housing

Many students, especially those in their first year, choose to live on campus. Besides the convenience, it's a good way to meet other people and to find out about social and academic activities. Four residence halls, two residential suites, and five residential plazas accommodate over 9,500 undergraduate students. All on-campus housing is coed and within walking distance to classrooms.



The UCLA Store offers five campus locations.

Textbooks is one of eight departments in the main Ackerman Union store.

Rooms in undergraduate residences are furnished and usually shared between two to three students. Meals are served daily at residential restaurants, and students may choose from a variety of meal plans.

To apply for on-campus housing, the application must be completed online by the deadlines set by the housing office. See <http://map.ais.ucla.edu/go/1001744>. Students applying for Winter or Spring Quarter are assigned on a space-available basis in the order applications are received.

Per-person costs for the academic year start at just over \$10,200. Consult the housing office for the range of price options. See <http://map.ais.ucla.edu/go/1003323>.

The Office of Residential Life is responsible for student conduct in residence halls and suites and provides professional and student staff members to counsel residents on programming and other problems. See <http://www.orl.ucla.edu> or call (310) 825-3401.

The office is also a designated Sexual Harassment Information Center and Harassment Information Center available to all UCLA students (see Harassment in the Appendix for more information).

Off-Campus Housing

Within walking distance of campus, the University maintains seven off-campus apartment buildings for full-time single transfer and upper division students. Apartments vary from singles to three-bedroom units, with bedrooms usually shared by two or three students. Not all types of apartment spaces are available to entering students. See <http://map.ais.ucla.edu/go/1001723> or call (310) 983-1300.

Off-campus apartments for married, single-parent, and single graduate students include unfurnished studio, one-, two-, and three-bedroom units, some located within walking distance of campus and others about five miles from campus. Assignment to several of the apartment units is by wait list; students should not wait until they have been accepted to UCLA to apply. Verification of marriage and/or copies of children's birth certificates must accompany applications for married and family housing. See <http://map.ais.ucla.edu/go/1001376> or call (310) 398-4692.

The UCLA Community Housing Office provides information and listings for non-University-owned apartments, cooperatives, private apartments, roommates, rooms in private homes, and short-term housing. Rental listings are updated daily. The office also has bus schedules, area maps, and neighborhood profiles. A current BruinCard or letter of acceptance is required for service. See <http://www.cho.ucla.edu> or call (310) 825-4491.

Many of the fraternities and sororities at UCLA own chapter houses. Complete information and membership requirements are provided by Fraternity and Sorority Relations. See <http://www.greeklife.ucla.edu/chapterhouses/housing.html> or call (310) 825-6322.

BANKING

Automated teller machines representing several major banks are located in Ackerman Union and near restaurants and shops around campus.

The University Credit Union has an office in West Los Angeles and a branch office in Ackerman Union. See <http://www.ucu.org> or call (310) 477-6628.

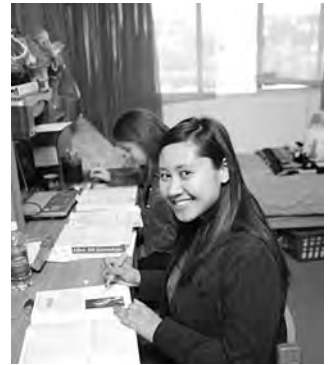
BRUINCARD

The UCLA BruinCard is a mandatory student identification card that is used to electronically confirm student status and eligibility for services. Supportive photo identification, such as a driver's license or passport, is required when the card is issued.

The primary benefit of the BruinCard is convenience. It is a versatile card that serves the following functions: confirmation of student status; I.D. card for faculty, staff, and students; residence hall access and meal card; laundry card; library card; recreation card; debit card (if activated) for purchases at campus stores and restaurants on and off campus; and access to the Santa Monica and Culver City bus lines.

Students with a hold from an office with which they have an outstanding obligation (financial, academic, or administrative) may not receive services until the hold is released by the initiating office. For details on outstanding holds and initiating offices, check URSA at <http://www.ursa.ucla.edu>.

BruinCard centers are in 123 Kerckhoff Hall and 150A Sproul Hall. See <http://www.bruincard.ucla.edu> to check account balance, make deposits, view recent transactions, and report lost or stolen cards or call (310) 825-2336.



BRUIN RESOURCE CENTER

The Bruin Resource Center (BRC) in the Student Activities Center can help students navigate the campus and its many services by directing them to the correct office or personnel to meet their specific needs. The BRC can also help students cut through some of the red tape that can exist at any large university.

The center provides services to all UCLA students, including specialized services for transfer and reentry students, students who are transitioning out of foster care, and student parents. Additional offerings include workshops and academic courses to help students develop practical skills and knowledge to succeed at UCLA. The BRC also houses the Veterans Resource Office (<http://www.veterans.ucla.edu>, 310-206-6915) which offers services specifically designed to assist students who are U.S. armed forces veterans or current military members. See <http://www.brc.ucla.edu> or call (310) 825-3945.



New freshman and transfer students who are admitted for Fall Quarter and apply by the deadline are guaranteed housing.

The campus offers multiple services to support students who are veterans and members of the military.

CAREER CENTER

The UCLA Career Center, located in the Strathmore Building, offers career planning and employment assistance free to all UCLA students. See <http://career.ucla.edu> or call (310) 206-1915.

Career Planning and Exploration

Career counselors provide assistance in selecting a major, setting realistic career goals, investigating career options, evaluating graduate and professional school

programs, and developing skills to conduct a successful job search. Information on local, national, and international internship opportunities can assist students in exploring different career possibilities, making important professional contacts, and obtaining valuable on-the-job experience. The Career Center Library offers a collection of over 3,000 resources, including career-related books and directories, videos, periodicals, and other materials. In addition, the Career Center offers workshops on a variety of career-related topics; many are repeated several times each term.



Employment Assistance

Students who need extra money to finance their college degree can find a large volume of part-time, temporary, and seasonal employment leads advertised through the Career Center's 24-hour BruinView™ online listings. Students and recent graduates looking for full-time, entry-level career positions may access hundreds of current professional, managerial, and technical openings in numerous career fields. Seniors and graduate students may participate in campus interviews for positions in corporations, government, not-for-profit organizations, elementary and secondary schools, community colleges, and four-year academic institutions. Annual career fairs and special events offer additional opportunities to meet potential employers.



CENTRAL TICKET OFFICE

Tickets for UCLA events are available at the Central Ticket Office (CTO) in the James West Alumni Center. As part of its service, CTO offers students with current BruinCards discount tickets to campus athletic and cultural events and local movies. Students may also purchase tickets to off-campus events through Ticketmaster, as well as student discount tickets for Los Angeles area buses. See <http://www.tickets.ucla.edu> or call (310) 825-2101.

DEAN OF STUDENTS

The Office of the Dean of Students in Murphy Hall helps students, either directly or by referral, with whatever needs they might have. Direct services include general counseling; sending emergency messages to students; and assisting in understanding University policies and procedures, including grievance procedures regarding student records, discrimination, and student debts.

In addition, the office publishes Official Notices in the *Daily Bruin* at various times during the year. Such notices are important, and all students are held responsible for the information in them.

The Office of the Dean of Students may also administer campus discipline and enforce the standards of citizenship that students are expected to follow at UCLA. Standards involve complying with the policies and regulations governing this campus and being aware that violation of those policies or regulations can result in disciplinary action. Refer to Student Conduct: University Policies in the Appendix for more information. See <http://www.deanofstudents.ucla.edu> or call (310) 825-3871.

CHILD CARE

UCLA Early Care and Education (ECE) operates three child care centers near the University and student housing. Care is provided for children two months to six years old at most centers. Fees depend on the age of the child. A limited number of state grants and partial scholarship subsidies is available for eligible student families. See <http://www.ece.ucla.edu> or call (310) 825-5086.

The ECE Child Care Resource Program helps parents make off-campus child care arrangements and coordinates a Choosing Child Care Forum each month. See <http://map.ais.ucla.edu/go/1000688> or call (310) 825-8474.

The ECE University Village Kindergarten Program offers a multicultural, full-day science-based curriculum for five-year-old children of UCLA students, faculty, and staff. It also offers summer enrichment activities. See <http://map.ais.ucla.edu/go/1000391> or call (310) 915-5827.

University Parents Nursery School is a UCLA-affiliated, parent-participation multicultural cooperative school for two- through five-year-old children of UCLA students, faculty, and staff. See <http://upns.bol.ucla.edu> or call (310) 397-2735.

INTERNATIONAL STUDENT SERVICES

International student services in Bradley Hall provide support for UCLA's international community, particularly for nonimmigrant students. An orientation program helps international students plan their academic objectives, and programs throughout the year allow them to share viewpoints with American students and the community.

Dashew Center for International Students and Scholars

The Dashew Center for International Students and Scholars assists students with questions about immigration, employment, government regulations, financial aid, academic and administrative procedures, cultural adjustment, and personal matters. The center seeks to improve student and community relationships, helps international students with language, housing, and personal concerns, and sponsors cultural, educational, and social programs. The center is a designated Sexual Harassment Information Center for international students and a Harassment Information Center available to all UCLA students (see Harassment in the Appendix for more information). In addition, the center provides visa assistance for faculty members, researchers, and postdoctoral scholars. See <http://www.internationalcenter.ucla.edu> or call (310) 825-1681.

LESBIAN GAY BISEXUAL TRANSGENDER CAMPUS RESOURCE CENTER

The Lesbian Gay Bisexual Transgender (LGBT) Campus Resource Center in the Student Activities Center provides education, information, and advocacy services for the UCLA community. The center offers support groups, educational workshops, training seminars, and social activities and maintains a library of 4,000 books, periodicals, and films. The staff provides confidential assistance and support to students, faculty, and staff who feel they have experienced harassment or discrim-

International students can take advantage of services through the Dashew Center, including questions concerning immigration, cultural adjustment, and academics.

ination or who wish to connect to the campus LGBT community. See <http://www.lgbt.ucla.edu> or call (310) 206-3628.

OFFICE FOR STUDENTS WITH DISABILITIES

The Office for Students with Disabilities (OSD) in Murphy Hall provides academic support services to regularly enrolled students with documented permanent or temporary disabilities in compliance with Section 504 of the Rehabilitation Act of 1973, the Americans with Disabilities Act (ADA) of 1990, and University policies. Services include campus orientation and accessibility, note takers, readers, sign language interpreters, Learning Disabilities Program, registration assistance, test-taking facilitation, special parking assistance, real-time captioning, assistive listening devices, on-campus transportation, adaptive equipment, support groups and workshops, tutorial referral, special materials, housing assistance, referral to the Disabilities and Computing Program, and processing of California Department of Rehabilitation authorizations. There is no fee for any of these services. All contacts and assistance are handled confidentially. See <http://www.osd.ucla.edu> or call (310) 825-1501, TDD (310) 206-6083, fax (310) 825-9656.

For information on the Disabilities and Computing Program, see Computer Support under Supporting Resources earlier in this section.

OFFICE OF OMBUDS SERVICES

The Office of Ombuds Services responds to issues and concerns from students, staff, faculty, and administrators. Acting impartially, ombuds persons may investigate unresolved conflicts or facilitate the resolution of problems for which there are no established guidelines and may also, where possible and when requested by the visitor, assist in resolving an issue through mediation (including sexual harassment cases). The office is in the Strathmore Building. See <http://www.ombuds.ucla.edu> or call (310) 825-7627.

The office is also a designated Sexual Harassment Information Center for students, faculty, and staff, as well as a campus Harassment Information Center available to all UCLA students (see Harassment in the Appendix for more information).

PARKING AND COMMUTER SERVICES

Parking, ridesharing, and other transportation options and services are offered through UCLA Transportation Services. There are several commuting alternatives for students to get to and from campus without driving their cars. Both full-time and part-time riding opportunities are available.

Commuter Assistance-Ridesharing

The Commuter Services and Information (CSI) Office is the best place for information on transportation options. Many students form or join existing UCLA carpools or vanpools. Students can use Zimride, a Facebook application, to find one-time rides or create a carpool with fellow Facebook users. More than 160 vanpools commute to UCLA from 85 Southern California communities. Full- and part-time riding opportunities are available, and registered two- and three-

person student carpools are given top priority to receive parking (see below).

Information on these and other commuting options, including an extensive network of public transit, are available online or at the CSI office in the Strathmore Building at Strathmore Drive and Westwood Plaza. See <http://www.transportation.ucla.edu> or call (310) 794-7433.

Parking Permits

Due to limited availability, parking at UCLA is offered to students who demonstrate the greatest need. Student parking permits are assigned through a point system that considers class standing, commute distance, employment, dependent children, and professional school obligations. Students are encouraged to apply on time and follow all application and payment guidelines in order to increase their chances of receiving a permit. Permits are not guaranteed.

When assigning parking permits to students, UCLA Parking Services gives the highest priority to carpools. Carpool permits are guaranteed to all qualified two- and three-person student carpool groups that apply on time. Student carpools park in central campus parking areas and share a discounted permit fee. Students interested in forming a carpool who need help finding other students living near them should call the CSI office at (310) 794-7433. All members of a proposed student carpool must apply in person as a group.

Most student permits are assigned for the academic year and can be paid for annually or quarterly. Renewal forms for students paying quarterly are automatically mailed before the Winter and Spring Quarter payment due dates. Students who are not offered a parking assignment during a given term or who wish to change their parking area need to reapply the following term.

Student Parking Request forms, along with important quarterly due dates and information on how to apply for a parking permit, are available online, by calling (310) 825-6918, or in person at Parking Services. Parking request forms can also be downloaded at <http://www.transportation.ucla.edu/appmain.htm>.

Students with permanent disabilities who have disabled persons' placards or DMV-issued disabled persons' license plates, and students with short-term disabilities, may apply to the Office for Students with Disabilities for parking assignments and on-campus transportation assistance. See <http://www.osd.ucla.edu> or call (310) 825-1501.

Parking permits and access cards to campus lots and structures are not transferable and may be purchased only from UCLA Parking Services. Resale is prohibited and subjects both buyer and seller to disciplinary action.

POST OFFICES

Campus mail is handled by UCLA Mail, Messenger, and Distribution Services, which offers full-service document processing and delivery for the campus community. See <http://map.ais.ucla.edu/go/1002735> or call (310) 825-0381.



The Office for Students with Disabilities is a support center that serves students who have permanent or temporary disabilities.

The United States Postal Service operates two express post offices for the campus, including a branch in Ackerman Union. Call (310) 206-5596 for further information.

STUDENT LEGAL SERVICES

Through Student Legal Services in Murphy Hall, currently registered and enrolled students with legal problems or questions about their legal rights can get assistance from attorneys or law students under direct supervision of attorneys. They help students resolve legal problems, including those related to landlord/tenant relations; accident and injury problems; criminal matters; domestic violence and harassment; divorces and other family law matters; automobile purchase, repair, and insurance problems; healthcare, credit, and financial aid issues; consumer problems; and University-related issues. Assistance is available only by appointment. See <http://www.studentlegal.ucla.edu> or call (310) 825-9894.

STUDENT ACTIVITIES

The opportunities to participate in extracurricular activities at UCLA are virtually unlimited and provide a good way for students to expand their horizons beyond classroom learning.



CLUBS AND ORGANIZATIONS

Joining a club or organization is a great way to meet other students with shared interests and to get involved in campus life. UCLA has over 800 different organizations recognized by the Center for Student Programming—more than are found on almost any other university campus in the country.

CENTER FOR STUDENT PROGRAMMING

Organizations registered with the Center for Student Programming (CSP) include political, recreational, community service, cultural, academic, religious, and residential clubs. It only takes three people to start a new club if their interests are not already represented. CSP also handles complaints of misconduct against officially recognized student organizations. See <http://www.studentactivities.ucla.edu> or call (310) 825-7041.

One major CSP division is Fraternity and Sorority Relations.

Fraternity and Sorority Relations

Fraternities and sororities have been at UCLA since the early 1920s. Today UCLA counts over 60 national and local Greek-letter organizations that make up one of the largest Greek systems on the West Coast.

Fraternity and Sorority Relations (FSR) interprets University policies, procedures, and regulations and acts as a liaison between established Greek organizations and the University. It coordinates Greek-letter social organizations that participate in programs such as the

Greek Leadership Conference, Membership Recruitment, Greek Week, New Member Forums, Dating Expectations Programs, intramural tournaments, and University-sponsored programs. See <http://www.greek.life.ucla.edu> or call (310) 825-6322.

FSR is a designated campus Harassment Information Center available to all UCLA students (see Harassment in the Appendix for more information).

COMMUNITY PROGRAMS OFFICE

The UCLA Community Programs Office (CPO) was established in 1970 by concerned students, staff, and faculty who felt that students' educational experiences at UCLA should expand outside the classroom and into Los Angeles.

Currently, the CPO houses 24 student-initiated community service projects that provide educational, legal, social, medical, and academic services to underserved communities in Southern California, seven student-initiated outreach projects that seek to improve the number of students from underserved areas of Southern California who attend colleges and universities, and six student-initiated retention projects that seek to ensure that all students who enter UCLA actually graduate. CPO is unique because it provides a multicultural and ethnically diverse environment to the UCLA campus. See <http://www.communityprograms.ucla.edu> or call (310) 825-5969.

PERFORMING ARTS

Concerts, dance recitals, and theater productions are all part of exceptional programs offered by the Music, Ethnomusicology, Film, Television, and Digital Media, Theater, and World Arts and Cultures Departments and by UCLA Live.

DEPARTMENT EVENTS

The Ethnomusicology Department provides students with the opportunity to perform in various world music and jazz ensembles that provide concerts listed in the department's schedule of events. See <http://www.ethnomusic.ucla.edu>.

The Music Department features performances by ensembles ranging from music theater to opera. In addition, the Gluck Fellows Music Outreach Program provides community outreach through free performances throughout the Los Angeles and Southern California region. See <http://www.music.ucla.edu>.

The Theater Department presents a series of major productions to the general public, and the Film, Television, and Digital Media Department features student-directed films and television programs throughout the year. The School of Theater, Film, and Television's annual Festival of New Creative Work is a week-long celebration of film, digital media, animation, screenwriting, and acting that features everything from performance art to the classics. See <http://www.tft.ucla.edu>.

The World Arts and Cultures Department presents events and concerts involving departmental faculty members, guest artists, and students. Student performances include M.F.A. concerts, an undergraduate and graduate student-produced concert, and the



Senior Concert/Colloquium. Students also perform in more informal programs, such as the end-of-term student works festival or *Pau Hana*, that feature many world dance forms. See <http://www.wac.ucla.edu>.

UCLA LIVE

Since 1937, UCLA Live has served as the premier West Coast showcase for world-class performing artists and ensembles as well as innovative new work in dance, music, theater, and performance art. UCLA Live presents more than 200 public concerts and events each year, often sponsoring debut performances of new works by major artists. Through UCLA Live, the campus hosts a varied and active performance program, ranging from regular concerts by the Los Angeles Chamber Orchestra to events with Ladysmith Black Mambazo, Yo-Yo Ma, Alvin Ailey American Dance Theater, Jessye Norman, Mikhail Baryshnikov, Pina Bausch Tanztheater Wuppertal, Twyla Tharp, Stomp, Pinchas Zukerman, and Branford and Wynton Marsalis. Subject to availability, discount tickets are offered to students, faculty, and staff. See <http://www.uclalive.org> or call (310) 825-4401.

SPORTS AND ATHLETICS

Athletics play a major role in the University's mission to provide a well-rounded education both in and out of the classroom. UCLA continues to live up to its reputation as a national leader in intercollegiate sports and ranks first in the U.S. in the number of National Collegiate Athletic Association (NCAA) championships won (106). In 2007-08 the UCLA athletic programs (men and women) placed second in the Directors Cup national all-around excellence survey. In the 23-year history of the former *USA Today* survey, the men's program placed first 11 times, while the women's program placed first five times in the final nine years. UCLA was the first university in the country to win five NCAA men's and women's championships in a single year (1981-82). See <http://uclabruins.cstv.com>.

UCLA also has produced a record number of professional athletes such as Troy Aikman, Eric Karros, Reggie Miller, Natalie Williams, and Corey Pavin and Olympians such as gold medalists Lisa Fernandez, Karch Kiraly, Gail Devers, Peter Vidmar, Dot Richardson, and Jackie Joyner-Kersey.

ATHLETIC FACILITIES

The major indoor arena at UCLA is the famed Pauley Pavilion, which seats 12,800 for UCLA basketball, volleyball, and gymnastics events. It was the site of the 1984 Summer Olympics gymnastics competition. Immediately adjacent, Drake Stadium is the home of UCLA track and field and soccer competitions and site of many outdoor events, including the U.S. Olympic Festival '91. The new Spieker Aquatic Center is home to the UCLA water polo, swimming, and diving teams. The Los Angeles Tennis Center, a 5,800-seat outdoor tennis stadium and clubhouse, was the site of the 1984 Olympic tennis competition. Easton Softball Stadium, which seats 1,300, is the home of the championship women's softball team. The Morgan Intercollegiate Athletics Center houses the UCLA Athletic Hall of Fame. Off-campus facilities include Jackie Robinson Stadium for varsity baseball and the

renowned Rose Bowl in Pasadena, home of the UCLA football team.

MEN'S INTERCOLLEGIATE SPORTS

UCLA is a member of the Pacific-10 Conference, which includes Arizona State University; University of Arizona; University of California, Berkeley; Oregon State University; University of Oregon; Stanford University; University of Southern California; Washington State University; and the University of Washington. UCLA teams have won an overall total of 71 NCAA men's championships—second highest in the nation—including 19 in volleyball, 16 in tennis, 11 in basketball, eight each in track and field and water polo, four in soccer, two each in golf and gymnastics, and one in swimming. Students can participate on the varsity level in football, basketball, track, baseball, tennis, volleyball, water polo, golf, soccer, and cross-country. Call (310) 825-8699 for further information.

WOMEN'S INTERCOLLEGIATE SPORTS

With 11 different varsity sports, the UCLA women's program is one of the most extensive in the country, and UCLA has played an important role in establishing women's sports as part of the NCAA. Women's teams have won an overall total of 35 NCAA titles—second highest in the nation—including 11 in softball, seven in water polo, six in gymnastics, five in track and field, three in volleyball, two in golf, and one in tennis. Other nationally ranked teams are those in basketball, swimming, cross-country, and soccer. Call (310) 825-8699 for further information.



UCLA RECREATION

To help students learn new skills, meet people with similar interests, relieve stress, and increase fitness, the Department of Cultural and Recreational Affairs (CRA) oversees programs from intramural sports to outdoor adventures. See <http://www.recreation.ucla.edu> or call (310) 825-3701.

INTRAMURAL AND CLUB SPORTS

The UCLA Intramural Sports Program, (310) 267-5416, consists of team, dual, and individual sports competition in tournament or league play. Over 1,800 teams and 8,000 participants compete throughout the year in various sports activities ranging from basketball to water polo. UCLA students and recreation membership holders are eligible. Varying skill levels are offered in almost all activities, and the emphasis is on friendly competition.

The Club Sports Program, (310) 267-5416, offers students the chance to organize, coach, or participate in sports that fall beyond the scope of intramurals but are not offered at the varsity level. Recognized teams exist in archery, badminton, baseball, bowling, cycling, dragon boat, fencing, equestrian, ice hockey, kendo, men's and women's lacrosse, powerlifting, men's

rowing, men's and women's rugby, running, sailing, snowboarding and skiing, men's and women's soccer, softball, surfing, swimming, table tennis, taekwondo, tennis, triathlon, men's and women's ultimate, men's and women's volleyball, men's and women's water polo, waterskiing, wrestling, and wushu.

OUTDOOR ADVENTURES

Outdoor Adventures, (310) 206-1252, offer students the chance to get away and enjoy the wonders of local and distant mountains and waterways. Activities designed for beginning to experienced outdoors people include camping, rock climbing, scuba diving, windsurfing, canoeing, kayaking, and hiking.



CLASS PROGRAMS

Noncredit recreation classes in arts, dance, fitness sports, kayaking, martial arts, rock wall, rowing, sailing, surfing, swimming, tennis, water aerobics, windsurfing, yoga, and a variety of group fitness programs are offered for beginning and intermediate levels. Private lessons in tennis, fitness activities, swimming, racquetball, martial arts, and golf are also available. Fitness is offered either as a recreation class or on a drop-in basis.

FACILITIES

For registered students who prefer independent recreation and exercise, CRA offers access to many facilities. The John R. Wooden Recreation and Sports Center has multiple gymnasiums, racquetball/handball/squash courts, a weight training facility, rock climbing wall, exercise/dance and martial arts studios, and a games lounge. The Sunset Canyon Recreation Center offers activities in an outdoor park setting that

features a 50-meter swimming pool, 25-yard family pool, picnic/barbecue areas, play fields, outdoor amphitheater, eight lighted tennis courts, sand volleyball court, two multipurpose sports courts, and various meeting rooms and lounges, as well as a challenge course. The UCLA Marina Aquatic Center offers sailing, windsurfing, kayaking, rowing, surfing, and other activities. Students also have the use of Pauley Pavilion,

Drake Stadium, Sycamore Tennis Courts, Los Angeles Tennis Center, Intramural Fields, Student Activities Center, and Kaufman Hall for recreational sports and activities.

YOUTH AND FAMILY PROGRAMS

Youth and Family Programs, (310) 825-3701, offer exciting activities for children 3 to 17 years old. Summer programs include Bruin Base Camp for ages 8 to 15, Bruins on Broadway for ages 8 to 16, Bruins on Water for ages 8 to 10, Camp Adventure for ages 11 to 15, Camp Bruin Kids for ages 5 to 10, Camp Bruin Tots for ages 4 and 5, Camp Explore for ages 7 to 10, Camp Voyager for ages 11 to 15, Counselors in Training for ages 15 to 17, Sunset Sleep-over for ages 7 to 12, group and private lessons, and the Family Outdoor Entertainment Series. Activities combine play with skill development and deepen the fun in learning.

UCLA ALUMNI ASSOCIATION

Celebrating more than 75 years of serving the UCLA community, the UCLA Alumni Association has more than 91,000 members, making it one of the largest alumni groups in the nation. Whether a person is a recent graduate, a pioneer Bruin, or somewhere in between, membership in the Alumni Association is the best way to stay connected to UCLA and its growing excellence.

Membership dues enable the Alumni Association to serve as an advocate on campus and to play the vital role of guardian of the value of every UCLA degree. Dues also support programs such as Blue and Gold Week, Dinners for 12 Strangers, Spring Sing, UCLA Alumni Day, senior events, class reunions, career events, and the scholarship program.

The association offers many benefits and services, including career services. Members make friends, pursue lifelong learning, save money, and make a difference. UCLA graduates, Bruin parents, and friends of the University are invited to take advantage of all the association has to offer. Offices are in the James West Alumni Center. See <http://www.uclalumni.net>. Call (310) 825-2586 or, outside Los Angeles County, (800) 825-2586 for further information.



Undergraduate Study

The Office of Undergraduate Admissions and Relations with Schools (UARS) invites prospective students to visit UCLA for individual or group tours of the campus. Reservations are required. See <http://www.admissions.ucla.edu/tours.htm> or call (310) 825-8764 or 206-3719.

UNDERGRADUATE ADMISSION

Undergraduate Admissions and Relations with Schools
1147 Murphy Hall
(310) 825-3101

<http://www.admissions.ucla.edu>

Prospective UCLA undergraduate students should give careful thought to adequate preparation in reading, writing, mathematics, laboratory sciences, languages, visual and performing arts, and other subject areas related to a degree objective or major. High school honors level and advanced placement courses are good preparation regardless of the desired major. To be competitive, UCLA applicants need to present an academic profile much stronger than that represented by the minimum UC admission requirements.

APPLYING FOR ADMISSION

To apply for admission to UCLA, complete the UC Application for Admission and Scholarships. Applicants may apply for the Fall Quarter at <http://www.universityofcalifornia.edu/admissions/>.

One application is used for the nine UC campuses with undergraduate programs. Students apply to one UC campus for a nonrefundable application fee; an additional fee is charged for each additional campus.

WHEN TO APPLY

All majors and programs in the College of Letters and Science, School of Arts and Architecture, School of Theater, Film, and Television, School of Nursing, and Henry Samueli School of Engineering and Applied Science are open for Fall Quarter. The application filing period is November 1-30 of the prior year. See <http://www.admissions.ucla.edu/prospect/applying.htm> for up-to-date information on application procedures.

NOTIFICATION OF ADMISSION

The UC Undergraduate Application Processing Service e-mails notices to acknowledge receipt of applications. Subsequently, UCLA UARS notifies students of the admission decision. Fall Quarter freshman applicants are notified beginning in late March and transfers in late April.

Students who are offered admission are asked to submit a Statement of Intent to Register and a Statement of Legal Residence. A nonrefundable deposit, also required at this time, is applied to the Student Services Fee as long as students register in the term to which they are admitted.

ENTRANCE REQUIREMENTS

Entrance requirements established by the University follow the guidelines set forth in the California Master Plan for Higher Education, which requires that the top one eighth of the state's high school graduates be eligible for admission to the University of California. Requirements are designed to ensure that all eligible students are adequately prepared for University-level work.

Fulfilling the minimum admission requirements does not assure admission to UCLA. Admission is based on demonstrated high scholarship in preparatory work going well beyond the minimum eligibility requirements. UCLA offers admission to those students with the best overall academic preparation, viewed in the context of the applicants' academic and personal circumstances, extracurricular and volunteer experiences, and the overall strength of the UCLA applicant pool. For details, see <http://www.admissions.ucla.edu>.

ADMISSION AS A FRESHMAN

Students are considered freshman applicants if they have not enrolled in a regular session of any college-level institution since graduation from high school. Students who attend summer session immediately following high school graduation are still considered freshman applicants.



MINIMUM ADMISSION REQUIREMENTS

To be considered for admission as a freshman, students must meet the subject requirement, the scholarship requirement, and the examination requirement.

Subject Requirement

The subject requirement, sometimes called A to G requirements, is a sequence of high school academic courses required for admission to the University. Each course must be completed with a grade of C or better. The requirement consists of 15 year-long courses, seven of which must be taken during the last two years in high school. These are the minimum requirements; students should exceed these requirements whenever possible.

- a. **History/Social Science.** Two years of history/social science, including one year of world history, cultures, and geography, and one year of U.S. history or one-half year of U.S. history and one-half year of civics or American government
- b. **English.** Four years of college preparatory English that include frequent and regular writing, and reading of classic and modern literature, poetry, and drama. No more than one year of ESL-type courses can be used to meet this requirement
- c. **Mathematics.** Three years of college preparatory mathematics that include the topics covered in elementary and advanced algebra and two- and three-dimensional geometry (four years are recommended, including trigonometry and calculus). Approved integrated mathematics courses taken in the seventh and eighth grades may be used to fulfill this requirement if the high school accepts them as equivalent to its own mathematics courses
- d. **Laboratory Science.** Two years of laboratory science (three years are recommended) that provide fundamental knowledge in at least two of the three foundational subjects: biology, chemistry, and physics. Advanced laboratory science courses that have biology, chemistry, or physics as prerequisites and offer substantial new material may be used to fulfill this requirement. The last two years of an approved three-year integrated science program that provides rigorous coverage of at least two of the three foundational subjects may also be used to fulfill this requirement
- e. **Language Other than English.** Two years of the same language, other than English (three to four years are recommended). Courses should emphasize speaking and understanding and include instruction in grammar, vocabulary, reading, and composition. Courses in languages other than English taken in the seventh and eighth grades may be used to fulfill part of this requirement if the high school accepts them as equivalent to its own language courses
- f. **Visual and Performing Arts.** One year-long approved arts course from a single visual and performing arts discipline: dance, drama/theater, music, or visual art
- g. **College Preparatory Electives.** One year (two semesters), in addition to those required in a to f above, selected from the following areas: history, English, advanced mathematics, laboratory science, language other than English (a third year in

the language used for the e requirement or two years of another language), social science, and visual and performing arts (non-introductory level courses)

Subject Requirement	
a. History/Social Science	2 years
b. English	4 years
c. Mathematics	3 years
d. Laboratory Science	2 years
e. Language Other than English	2 years
f. Visual and Performing Arts	1 year
g. College Preparatory Electives	1 year

Scholarship Requirement

Eligibility for admission to the University of California is based on a combination of the grade-point average in the academic subject requirement and the ACT Assessment plus Writing Tests or the SAT Reasoning Test, and SAT Subject Test scores. For details, refer to *Introducing the University* at <http://www.universityofcalifornia.edu/admissions/ITU.pdf>.

Examination Requirement

All freshman applicants must submit scores from the following tests:

1. Either the ACT Assessment plus Writing Tests score or the SAT Reasoning Test score
2. Two SAT Subject Tests in two different subject areas: English (literature), history/social studies, mathematics (level 2 only), science, or languages other than English. Applicants to the Henry Samueli School of Engineering and Applied Science are strongly encouraged to take the following SAT Subject Tests: Mathematics Level 2 and a science test (Biology E/M, Chemistry, or Physics) that is closely related to the applicant's intended major

The tests should be taken by December of the senior year, as they are part of the review process. Students should request that test results be sent directly to UCLA when they take each test.

Applicants for Fall Quarter 2012 and thereafter are no longer required to submit scores from two SAT Subject Tests. Although not required, students may elect to submit the scores for consideration.

ADMISSION SELECTION

UCLA selects students using a carefully designed holistic review process that takes into account an applicant's achievements, both academic and nonacademic, in the context of the opportunities available to the student. Among other factors, holistic review specifically considers academic grade-point average; performance on standardized tests; the quality, quantity, and level of coursework taken; sustained participation in activities that develop academic and intellectual abilities; leadership and initiative; employment and personal responsibilities; and overcoming life challenges related to personal or family situations.

Because admission requirements and selection criteria may change, freshman applicants should see http://www.admissions.ucla.edu/prospect/Adm_fr.htm for the most complete and up-to-date information.

To be considered for admission as a freshman, students must meet three main requirements: the subject requirement, the scholastic requirement, and the examination requirement. To be competitive, applicants need to present an academic profile much stronger than that represented by the minimum admission requirements.

ADMISSION AS A TRANSFER STUDENT

Students are considered transfer applicants if they have been a registered student (1) at another college or university or (2) in college-level extension courses. (This does not include attending a summer session immediately following high school graduation.) Students may not disregard their college record and apply for admission as a freshman.

In accordance with the California Master Plan for Higher Education, first preference is given to California community college applicants. Applicants transferring from other UC campuses are next in priority, followed by applicants transferring from other colleges and universities. Each application receives a comprehensive review, integrating all available information. Students attaining senior standing are generally not admitted.

Academic criteria are as follows: junior-level standing (60 semester/90 quarter transferable units completed) by the end of the spring term before transfer, grade-point average in transferable courses, significant preparation for the major, completion of the English composition and mathematics requirements, and progress toward completion of the Intersegmental General Education Transfer Curriculum (IGETC), another UC campus general education requirements, or UCLA general education requirements.

For details on transfer admission requirements, refer to the guidelines in the application. See http://www.admissions.ucla.edu/prospect/Adm_tr/tradms.htm.

INTERCAMPUS TRANSFERS

Undergraduate students registered in a regular session at any University of California campus (or those previously registered who have not since registered at any other school) may apply for transfer to another campus of the University. Submit the UC Application for Transfer Admission and Scholarships with the required application fees. The filing periods are the same as those for new applicants. Students who have attended another UC campus and wish to be considered for admission to UCLA must have been in good standing when they left that campus. Intercampus transfers are not automatic; students must compete with all other applicants.

TRANSFER CREDIT AND CREDIT BY EXAMINATION

The University awards unit credit to transfer students for certain courses completed at other accredited colleges and universities. To be accepted for credit, the courses must be comparable to those offered at the University, as determined by UARS. All courses that meet the criteria are used in determining eligibility for admission.

To convert semester units into quarter units, multiply the semester units by 1.5. For example, 12 semester units \times 1.5 = 18 quarter units.

College credit for examinations given by national testing services is generally not allowed, except for the AP Tests given by the College Board and the International

Baccalaureate higher-level examinations. See <http://www.admissions.ucla.edu/trcredit.htm>.

INTERNATIONAL APPLICANTS

To be considered for admission to the University of California, international students must have completed secondary school with a superior average in academic subjects and have earned a certificate of completion that would enable them to be admitted to a university in the home country.

The application for admission, copies of official certificates, and detailed records of all secondary schools attended should be submitted as early as possible after the filing period opens. This allows time for the necessary correspondence and, if students are admitted, to obtain passport visas.

Proficiency in English. Students whose native language is not English must have sufficient command of English to benefit from instruction at UCLA. First-year undergraduate students who have not otherwise satisfied the Entry-Level Writing requirement and who have not taken the Analytical Writing Placement Examination (AWPE) by the time they enter UCLA must take the AWPE in their first term at UCLA. Results of the AWPE are reviewed to determine whether students should complete the English as a Second Language (ESL) requirement, prior to satisfying the Entry-Level Writing requirement, in order to demonstrate sufficient command of English. If held for the ESL requirement, students must complete the requirement by taking the designated ESL courses.

In addition, they are advised to take the Test of English as a Foreign Language (TOEFL) as a preliminary means of testing their ability. Make arrangements for this test by contacting TOEFL/TSE Publications, P.O. Box 6151, Princeton, NJ 08541-6151, (609) 771-7100 or at <http://www.ets.org>. Have the test results sent directly to the UCLA Office of Undergraduate Admissions and Relations with Schools.

SECOND BACHELOR'S DEGREE

By policy, second bachelor's degrees are not generally granted, except in the School of Nursing R.N. to B.S./postlicensure program.

REGISTRATION

Registrar's Office
1113 Murphy Hall
(310) 825-1091, option 6
<http://www.registrar.ucla.edu>

Registration consists of paying fees and enrolling in classes.

1. Registration fees and other University charges are due the 20th of each month. BruinBill accounts can be viewed through URSA.
2. Enrollment in classes is completed via URSA at <http://www.ursa.ucla.edu>.

Students must complete both processes by the established deadlines to be officially registered and enrolled for the term.

PAYING FEES

Details on fee payment, enrollment procedures, and deadlines are in the *Schedule of Classes* at <http://www.registrar.ucla.edu/schedule/>.

eBILL

BruinBill accounts are administered electronically (eBill) through URSA. Monthly financial activity is displayed for the current month, as well as account activity for the last 24 months. URSA also provides a link to the Student Financial Services website (<http://www.sfs.finance.ucla.edu/ebills.asp>) where students can find important communications from the University regarding registration and University policies. Students can pay their BruinBill account electronically using electronic checks or Visa, MasterCard, Discover Card, American Express, PULSE, NYCE, or STAR through URSA only. Students can also print a remittance document from the eBill webpage and mail payments with a check or money order. UCLA converts checks into electronic payments.

ANNUAL UNDERGRADUATE FEES

Although the exact cost of attending UCLA varies, there are some fees that all UCLA students must pay. UCLA does not charge on a per-unit basis. Each entering and readmitted student is required to submit a Statement of Legal Residence. Legal residents of California are not required to pay tuition. Students classified as nonresidents must pay annual tuition in addition to registration fees. For a definition of residence and nonresidence, see the Appendix.

Fees are subject to change without notice by The Regents. See <http://www.registrar.ucla.edu/fees/> for updates. The Student Services Fee covers student expenses such as counseling, facilities, registration, graduation, and health services. The fee is charged whether or not students make use of these services.

COURSE MATERIALS FEES

The College of Letters and Science and each school are authorized to assess course materials fees. Some course materials fees are assessed based on actual enrollment at the end of the fourth week of classes. Students are responsible for ensuring that all Study List errors and omissions are corrected prior to the end of the second week. All students in a course with an approved course materials fee are assessed the fee, regardless of major. The fee is nonrefundable. Students who are approved for a Late Add enrollment in a course after the third week are required to pay the course materials fee, which is billed through BruinBill, for the entire term.

For fee amounts and updates, see <http://www.registrar.ucla.edu/fees/>.

MISCELLANEOUS FEES

Miscellaneous fees include charges for late registration fees payment. Late fees also apply if students file their Study List late or do not pay off BruinBill balances on time. Fees are charged if any check is returned by a bank for any reason. Charges are assessed for most petitions and other special requests. A full list of miscellaneous fees is posted at <http://www.registrar.ucla.edu/fees/miscfee.htm>.

Estimated Annual Fees for 2010-11

Fees are mandatory and subject to change without notice. See <http://www.registrar.ucla.edu/fees/> for updates.

Student Services Fee	\$ 900.00
Educational fee	9,402.00
Undergraduate Students Association fee	121.38
Green Initiative fee	12.00
PLEDGE fee	38.92
Ackerman Student Union fee	55.50
Ackerman/Kerckhoff Seismic fee	113.00
Wooden Recreation Center fee	45.00
Student Programs, Activities, and Resources Center fee	93.00
Student Health Insurance Plan (SHIP)	1,087.14
Total for California residents	\$11,867.94
Nonresident educational fee	10,260.00
Nonresident tuition	22,021.00
Total for nonresidents	\$34,746.94

STUDENT HEALTH INSURANCE PLAN

All UCLA undergraduate students are automatically assessed for and enrolled in the Undergraduate Student Health Insurance Plan (USHIP) as a condition of registration at UCLA. Continued enrollment in a qualified medical/health insurance plan must be maintained during all registered terms.

Students may improve USHIP benefits by enrolling in USHIP Plus to add dental benefits. USHIP Plus requires either enrollment for the academic policy year or when students are first eligible. See <http://www.studenthealth.ucla.edu>, click on the SHIP Insurance Info tab, and then select Purchase Dental Insurance (USHIP Plus). This must be submitted by the fee payment deadline.

The USHIP fee is billed each term along with other UCLA fees. USHIP fulfills all of the requirements mandated for a qualified medical/health insurance plan as defined by the University. The Ashe Student Health and Wellness Center is the primary healthcare provider for USHIP and is where all nonemergency medical care must be initiated for USHIP claim payment consideration. See <http://www.studenthealth.ucla.edu>.

Waiving USHIP

Students may waive USHIP if they (1) maintain active enrollment in a qualified medical/health insurance plan that meets all established requirements, (2) apply for a USHIP waiver within established deadlines, and (3) correctly complete the online USHIP waiver form.

Students must apply for a USHIP waiver online. See the Ashe Center website for details, including a definition of a qualified private medical/health insurance plan. Click on the SHIP Insurance Info tab on <http://www.studenthealth.ucla.edu> and select Waive Student Health Insurance Plan (SHIP).

Deadlines for Waiving USHIP

Third-party individuals may not waive USHIP for another student. Waivers must be submitted by the

stated deadlines whether or not fees have been paid by that date. If the 20th falls on a weekend or holiday, the due date is the last business day prior to the 20th. Deadlines are strictly enforced. There are no refunds after the deadline.

The schedule for waiving USHIP is as follows:

Fall Quarter	September 1-20
Winter Quarter	December 1-20
Spring Quarter	March 1-20

The above information serves as official notice of the UCLA mandatory medical/health insurance requirement. All students are responsible for providing complete and accurate information that must be submitted by the stated deadlines.

HEPATITIS B VACCINATION REQUIREMENT

California law requires students 18 years and younger to provide proof of immunity to Hepatitis B prior to entering and enrolling at the University of California. The Hepatitis B vaccine is a three-shot series. If students have already received the series in their lifetime, there is no need to repeat it. To satisfy the requirement, all students must submit their information at <http://www.studenthealth.ucla.edu>. The link is located under the New Bruins section.

Students who have not yet completed the series are granted a two-term grace period to comply. Failure to satisfy the requirement by the third term results in a hold on student records, whereby students cannot enroll in classes or use any University services.

FEE REFUNDS

Students who formally withdraw from the University may receive partial refunds of fees. For information on withdrawal, see the Academic Policies section of this catalog. Consult the *Schedule of Classes* for exact refund amounts and dates.

FEE WAIVER REQUESTS

Late registration, processing, and penalty fees are waivable on request in writing to the office assessing the fees only if they were incurred through the fault of the University or because a student suffered sudden and debilitating injury or accident.

REDUCED FEE PROGRAMS

UCLA recognizes the need for part-time study in special circumstances. Undergraduate resident students—when approved for enrollment in 10 units or less by the dean of their program—may be eligible for a one-half reduction in the educational fee. The reduction is based on total units enrolled as of Friday of the third week of classes.

File a Request for Fee Reduction with the academic dean's office by Friday of the second week. Except for these qualified and approved part-time students, there is no reduction in the student services, educational, student union, Wooden Center, student programs, activities, and resources complex (SPARC), or Undergraduate Students Association fee.

Undergraduate nonresident students with College or school approval for enrollment in 10 units or less pay only half the nonresident tuition fee. File a Request for

Fee Reduction with the College or school office by Friday of the second week of classes for the applicable term.

Full-time University employees may apply for a reduction of the student services and educational fees at their Campus Human Resources office. Students who use the part-time fee reduction may not also use the UC employee reduction.

ENROLLING IN CLASSES

New students should see an academic counselor before enrolling in classes (counseling is required in the Henry Samueli School of Engineering and Applied Science). Counselors help new students choose courses and formulate a schedule tailored to their academic interests or degree objectives.

Summer Orientation takes new students through a step-by-step process designed to insure that they enroll in an effective program.

The *Schedule of Classes* (<http://www.registrar.ucla.edu/schedule/>) contains listings of class times, meeting rooms, instructors, and all information necessary for enrolling in classes. Use the *Schedule* and academic counseling to assemble a program of courses.

URSA ENROLLMENT

Students enroll in classes through University Records System Access (URSA), which is accessed at <http://www.ursa.ucla.edu>. The site walks students through the enrollment procedure.

Students are assigned specific times—called appointments—when they are allowed to enroll. Use URSA to determine enrollment appointments.

Also use URSA for other enrollment-related tasks, such as adding, dropping, or exchanging classes, joining the wait list for a class and checking waitlist status, or changing the grading basis for a class. For more information, see the URSA and Enrollment sections of the *Schedule of Classes* at <http://www.registrar.ucla.edu/schedule/>.

IN-PERSON ENROLLMENT

For classes that require written approval or specialized processing, students may enroll in person at 1113 Murphy Hall Monday through Friday from 9 a.m. to 4 p.m.

STUDY LIST

A Study List is the record of courses a student is enrolled in for the term. At 11:59 p.m. on Friday of the second week of instruction the Study List of enrolled courses becomes official, and all wait lists are eliminated. Students should verify their Study List through URSA after each enrollment transaction.



Students are responsible for all courses and the grading basis as listed on URSA and cannot receive credit for courses not listed.

After Friday of the second week, most changes to the Official Study List can be made with a fee via URSA. Some changes require an Enrollment Petition along with approval signatures.

See Enrollment in the *Schedule of Classes* for deadlines and complete instructions.

Errors or omissions should be corrected before the College or school deadlines for changes by petition. Unapproved withdrawal from or neglect of a course entered on the Study List results in a failing grade.

CONCURRENT ENROLLMENT

Concurrent enrollment—defined as taking courses during regular sessions for credit at UCLA and, at the same time, at a non-UC institution, including UCLA Extension—is not permitted except in extraordinary circumstances, and no credit is given for such courses unless the approval of the UCLA College or school has been obtained by petition prior to enrollment.

INTERSEGMENTAL CROSS-ENROLLMENT

At the discretion of the appropriate campus authorities on both campuses, California Education Code sections 66755 and 66756 (amended by California Senate Bill 361 passed in 1999) allow undergraduate students enrolled in any campus of the California community colleges, the California State University, or the University of California to enroll without formal admission in a maximum of one course per academic term at a campus of either of the other systems on a space-available basis. Enrollment in precollege courses is excluded.

UCLA students qualify for intersegmental cross-enrollment if they meet all the following requirements:

1. Complete at least one term at UCLA as a matriculated student
2. Enroll for a minimum of 6 units for the current term
3. Earn a grade-point average of 2.0 (C) for work completed
4. Pay appropriate tuition and fees at UCLA for the current term
5. Complete appropriate academic preparation as determined by the host campus
6. Have California residence status

Obtain a concurrent enrollment application from the College or school. An administration fee is charged for each academic term such enrollment is requested.

INTERCAMPUS VISITOR PROGRAM

Undergraduate students enrolled at one campus of the University of California may have the opportunity to attend another UC campus for one quarter or semester on the Intercampus Visitor Program. UCLA students obtain applications from the Registrar's Office, 1113 Murphy Hall. Observe the deadlines on the application. Applications are reviewed by a student's College or school. Letters and Science students should consult College Academic Counseling in A316 Murphy Hall; students in Arts and Architecture

should contact the Student Services Office in 2200 Broad Art Center; Theater, Film, and Television students should consult the Student Services Office in 103 East Melnitz Building; Engineering students should contact the Office of Academic and Student Affairs in 6426 Boelter Hall.

SIMULTANEOUS UC ENROLLMENT

Undergraduate students may enroll simultaneously in courses offered by another UC campus. Eligible students must be registered (fees paid), in good standing, and enrolled in at least 12 units at UCLA. Students may simultaneously enroll in no more than one UC host-campus course not to exceed 6 units. Before attending the host campus, both campuses must give approval. Approval to enroll simultaneously on another UC campus does not guarantee credit toward specific degree or general education requirements. Application of host-campus courses to UCLA graduation requirements is determined by the College or school. Details are on the application form. Obtain applications and directions for submitting forms from the following offices: honors students, A311 Murphy Hall; student athletes, Morgan Center; AAP students, 1209 Campbell Hall; all other Letters and Science students, College Academic Counseling, A316 Murphy Hall; Arts and Architecture, Theater, Film, and Television, Engineering and Applied Science, and Nursing students, their respective Student Affairs Office. The application is also available at <http://www.registrar.ucla.edu/forms/simul enroll.pdf>.

FINANCIAL SUPPORT

Financial Aid Office
A129J Murphy Hall
(310) 206-0400

<http://www.fao.ucla.edu>

The deadline for filing all undergraduate financial aid applications for the regular academic year is March 2. Applications received after the deadline are considered late, and limited aid is offered.

The *Financial Aid Handbook* contains complete details on all aid. Obtain a free copy at <http://www.fao.ucla.edu/publications.html>.

APPLYING FOR FINANCIAL AID

Students do not need to come from low-income families to qualify for financial aid. However, those who apply for need-based aid—including grants, loans, work study, and some scholarships—must demonstrate financial need, which is defined as the difference between the cost of attending UCLA and the amount that they and their families should be able to contribute.

No financial aid can be awarded to international students in their first year of attendance at UCLA.

Students attending UCLA Summer Sessions, Summer Travel Programs, Summer Institutes, or UC Cross-Campus Summer Sessions and in need of financial aid must submit a summer financial aid application in addition to the Free Application for Federal Student

Aid (FAFSA). Summer applications are available at <http://www.fao.ucla.edu>.

To qualify for aid, students must also comply with minimum progress standards, which set unit and grade-point average requirements as defined in the Appendix of this catalog.

FREE APPLICATION FOR FEDERAL STUDENT AID

To evaluate financial need, all students who apply for aid must provide financial information on the Free Application for Federal Student Aid (FAFSA). If students are financially independent according to the federal financial aid guidelines, their own financial circumstances are analyzed rather than those of their parents. The University expects that students and their families bear as much of the cost of a student's education as their circumstances permit.

The FAFSA is used to apply for all federally funded programs, funds administered by UCLA, and Cal Grants administered by the California Student Aid Commission. Loans that are not need based are also available to all students who complete FAFSA. Students should complete the FAFSA at <http://www.fafsa.ed.gov> by March 2. Be sure to indicate that the data is to be sent to UCLA by using the UCLA Title IV code: 001315.

PROSPECTIVE STUDENTS

In addition to using the FAFSA to apply for aid, prospective students who apply to UCLA with the UC Application for Admission and Scholarships may use the application to apply for undergraduate scholarships.

CONTINUING STUDENTS

Continuing students may access their FAFSA renewal applications at <http://www.fafsa.ed.gov> beginning in January and should complete them by March 2 for on-time consideration. International students can obtain their applications for aid from the Financial Aid Office beginning in January.

TYPES OF FINANCIAL AID

The four basic types of aid are scholarships, grants, loans, and work-study employment. The Financial Aid Office usually offers a combination of different award types to most applicants.

Aid can be merit based—awarded on the basis of standards such as academic achievement, or need based—awarded on the basis of financial need as determined by FAFSA. Scholarships managed by the Financial Aid Office are based on merit and need. Grants, loans, and work study are generally need based.

SCHOLARSHIPS

The Undergraduate Scholarship Program at UCLA rewards academic excellence and assists with the expenses of an undergraduate education.

Financial need is required for University and name (endowed) scholarships other than those listed below. Each year approximately \$300,000 is awarded from the many different scholarship funds. Awards range

from \$100 to \$2,000 and are not renewable. Entering students apply for scholarships on the UC Application for Admission and Scholarships. Continuing students must apply using the Continuing Undergraduate Scholarship Application at <http://www.fao.ucla.edu>. The application is available at the beginning of January and is due by March 2.

In addition to applying for University scholarships, students are encouraged to apply for outside scholarship funding via search engines such as FastWeb, GoCollege, and others.

Regents Scholarships

One of the highest honors conferred on an undergraduate student is the Regents Scholarship, which is awarded for four years to students entering from high school and for two years to entering juniors. A UCLA faculty committee selects Regents Scholars on the basis of exceptional academic achievement and promise. Scholars receive a yearly honorarium if they have no financial need. Scholars who establish financial need by filing the FAFSA receive a combination of grants and scholarships to cover the amount of their need. Regents Scholars also receive special privileges.

UCLA Alumni Scholarships

Alumni Scholarships are available to California high school graduates who will be UCLA freshmen in the Fall Quarter. Additional scholarships are available to community college transfer students with a 3.75 GPA. Students should have demonstrated leadership ability, be involved in extracurricular activities, and show academic excellence and promise. Alumni Scholarships are merit based and competitively awarded. Freshman award amounts range from \$4,000 to \$17,500 and are paid over four years; transfer awards are \$4,000 each and are paid over two years. Annual renewals require a combination of 30 hours of service annually to UCLA and the Alumni Association.



The Dr. Ralph J. Bunche Freshman Alumni Scholarships, also presented by the UCLA Alumni Association and named in honor of the Nobel Peace Prize laureate and UCLA alumnus, are given to students from historically underrepresented backgrounds to encourage students who add to the diversity of the UCLA campus community. Award amounts range from \$4,000 to \$17,500. Awards are paid over four years; annual renewals require a combination of 30 hours of service annually to UCLA and the Alumni Association.

In addition to the monetary awards, Alumni Scholars receive special privileges, including membership in the Alumni Scholars Club, a student organization dedicated to leadership development and service. Recipients who receive work study or loans as part of a financial aid package receive additional alumni grant monies the first year. Alumni Scholars are eligible to receive additional grant monies in their second, third, and fourth years up to \$5,000.

Applicants need not be related to UCLA alumni to apply. The UCLA Alumni Association administers these programs. For more information and applications, see <http://www.uclalumni.net/scholarships/>.

ROTC Scholarships

ROTC Scholarships are awarded on a competitive basis to U.S. citizens regardless of parents' income. Scholarships provide tuition, a book allowance, fees, and a tax-free monetary allowance between \$250 and \$500 per month during the academic year. Applications for scholarships may be obtained by calling—Army, (310) 825-7381; Air Force, (310) 825-1742; Navy/Marine Corps, (310) 825-9075—or by writing to Armed Forces Opportunities, P.O. Box 2865, Huntington Station, NY 11746-2102. When writing, specify if the scholarship is desired for Army, Air Force, or Navy/Marine Corps. Applications for Army scholarships can also be obtained at <http://www.goarmy.com>; for Air Force scholarships at <http://www.afrotc.com>; and for Navy scholarships at <https://www.nrotc.navy.mil> or by calling (800) 628-7682. Completed applications for four-year scholarships should be submitted prior to August 15 (Navy/Marine Corps) for early consideration, but no later than December 1 (Air Force and Navy/Marine Corps) or by February 1 (Army) of the year preceding college matriculation. Two- and three-year scholarship applications are also available and are considered when received. Four-year Navy scholarships are available for the nursing program.



GRANTS

Grants are based on need and do not have to be repaid. When awarding policies and funds permit, the financial aid package includes a grant.

Federal Pell Grants

Federal Pell Grants are based on exceptional need. They are awarded to undergraduate students who are U.S. citizens or eligible noncitizens and who have not earned a bachelor's degree. Amounts for 2010-11 range from \$1,176 to \$5,550. Students who file the FAFSA are automatically considered for a Pell Grant. Eligibility is determined by the federal government. Award amounts depend on a student's Estimated Family Contribution (EFC) and whether enrollment is full time or below.

Academic Competitive Grants

Academic Competitive Grants (ACG) are available to first- and second-year undergraduate students who have completed a rigorous high school curriculum and are U.S. citizens or eligible noncitizens, Pell Grant eligible, and enrolled full time. Sophomores must also have a 3.0 grade-point average at the time they advance a grade level to qualify for the second year of ACG. ACG provides up to \$750 for the first year of study and up to \$1,300 for the second year.

Science and Mathematics Access to Retain Talent Grants

Science and Mathematics Access to Retain Talent (SMART) Grants are available to third- and fourth-year undergraduate students who are U.S. citizens or eligible noncitizens, Pell Grant eligible, enrolled full time, and majoring in physical, life, or computer sciences, engineering, mathematics, technology, or a critical foreign language. Students must have a 3.0 cumulative grade-point average to qualify. SMART provides up to \$4,000 per year for the third and fourth year of study.

Cal Grants A and B

California residents who attend at least half-time are eligible to apply for a California Student Aid Commission Cal Grant award. The FAFSA and GPA Verification Form are the official applications for these programs. Cal Grant A awards assist low- and middle-income students with tuition and fee costs. They are based on need and grade-point average. Cal Grant B awards are intended to assist low-income and disadvantaged students with living expenses, books, supplies, and transportation costs. First-year awards may also cover registration fee costs. Renewal award recipients receive registration fee assistance. New awards are limited to students who have completed no more than one full-time semester or two full-time quarters or 16 semester units of part-time study or the equivalent.

State University Grants

State grants provide eligible on-time applicants with financial assistance from state funds. Awards range from \$100 to over \$10,000 and are based on student need. All undergraduate students who are U.S. citizens or eligible noncitizens and who apply on time are considered.

Federal Supplemental Educational Opportunity Grants

Federal Supplemental Educational Opportunity Grants (FSEOG) are awarded to undergraduate students with financial need. Awards range from \$100 to \$4,000. Recipients must be U.S. citizens or eligible noncitizens. Preference is given to Pell Grant and Cal Grant recipients. Only on-time, grant-eligible students are considered.

LOANS

Loans allow students to postpone paying some of the costs of their education until they have completed school. A financial aid offer includes a long-term, low-interest loan.

Borrowers must realize their commitment and responsibility to repay according to repayment schedules. Before accepting a loan, students should assess their total educational debt and ability to repay after graduation. The University makes every effort to assist students during the repayment of their obligation, but University services, including registration and the release of official transcripts, are withheld if the loan becomes delinquent. Seriously delinquent accounts are referred to a professional collection agency for action. All first-time borrowers must complete a debt management session at <http://www.loans.ucla.edu> before funds are released.

All loan recipients must complete an exit interview with the Student Loan Services Office (A227 Murphy Hall, 310-825-9864, <http://www.loans.ucla.edu>) before leaving UCLA for any reason. This interview helps students understand their loan agreement and their rights and responsibilities. If students fail to participate in an exit interview, the University places a hold on their academic records and registration materials. Exit information is mailed to students by the Student Loan Services Office after receipt of notification of separation from the University.

Federal Perkins Loans

Low-interest Federal Perkins Loans are awarded to eligible, on-time applicants who are U.S. citizens or eligible noncitizens. The loan limit per academic year is \$5,500 for undergraduate students and \$8,000 for graduate and professional students. The actual award amount may be less, based on annual funding and UCLA's institutional awarding policy. The loan interest rate is 5 percent. Loan repayment and interest accrual begin either six or nine months after graduation or dropping below half-time enrollment.

William D. Ford Federal Direct Loan Program

Direct Loans

Direct Loans are low-interest Subsidized and Unsubsidized Loans financed by the Department of Education. Loans are available to undergraduate, graduate, and professional students who are U.S. citizens or eligible noncitizens. The interest rate is fixed at 4.5 percent for undergraduate Subsidized Loans borrowed between July 1, 2010, and June 30, 2011, and 6.8 percent for graduate Subsidized Loans and all Unsubsidized Loans. Loan repayment begins six months after graduation or dropping below half-time enrollment.

Subsidized Loans are awarded to students who have demonstrated need. Interest is paid by the federal government until six months after the student leaves school or drops below half-time enrollment.

Unsubsidized Loans are available to all students regardless of income. Interest accrues from the date of disbursement, but students can avoid the extra costs of accrual by making regular interest payments while in school.

Direct PLUS Loans

Direct PLUS Loans are designed to help graduate students and parents of undergraduate students meet the total cost of education. Graduate students and parents may be eligible to borrow up to the cost of education for the academic year less any other financial aid received. This loan is available only to borrowers who do not have adverse credit histories. The interest rate is fixed at 7.9 percent. Borrowers may want to consult a tax adviser to see if this interest is tax deductible.

Private Loans

Private loans are available to students who have received the maximum award amounts under the Direct Loan Program and require additional funding. These loans are sponsored by banks and private lending institutions. Interest rates and repayment schedules

vary. These loans must be certified by the Financial Aid Office before funds can be disbursed.

Annual Limits	
Subsidized Loans	
Freshmen	\$ 3,500
Sophomores	4,500
Juniors/Seniors	5,500
Graduates (beyond bachelor's degree)	8,500
Unsubsidized Loans (includes any subsidized funds awarded)	
Freshmen	\$ 5,500
Sophomores	6,500
Juniors/Seniors	7,500
Graduates (beyond bachelor's degree)	20,500
Additional Unsubsidized Funding (for independent students and students whose parents are denied PLUS loans)	
Freshmen	\$ 4,000
Sophomores	4,000
Juniors/Seniors	5,000
Graduates (beyond bachelor's degree)	12,000

Short-Term Loans

Students need not be receiving financial aid to apply for a short-term loan. They may borrow up to \$200 for immediate emergency needs; the amount is repayable on the 20th of the month following the month in which the loan was made. To qualify, applicants must be registered UCLA students with satisfactory loan repayment records. Applications are available from the Student Loan Services Office, A227 Murphy Hall. See <http://www.loans.ucla.edu/shorttermloan.html>.

WORK-STUDY PROGRAM

The Federal Work-Study Program (FWS) is intended to stimulate and promote part-time student employment, particularly for students from low-income families who are in need of earnings to pursue their studies.

Under FWS, the federal government pays a portion of the students' wage and the employer pays the balance. Through this program, students may work up to 20 hours per week for the University, government agencies, or public and private nonprofit agencies. Students employed through FWS provide essential services to the University and community and have the opportunity to hold jobs that may relate to their educational objectives or enable them to gain valuable work experience.

MAJORS AND DEGREES

Students may choose from over 126 majors in a wide variety of disciplines offered through the undergraduate degree programs of the College of Letters and Science, School of the Arts and Architecture, Henry Samueli School of Engineering and Applied Science, School of Nursing, and School of Theater, Film, and Television. For a complete list of major programs and degrees, see the table in the front of this catalog.

PLANNING A MAJOR

New students should obtain academic counseling before enrolling in classes at UCLA. Counselors can help new students formulate degree objectives based on interests, abilities, and career goals. As students begin to decide on a major, counselors can help them start fulfilling College or school requirements as well as the department requirements necessary for completion of the degree program.

DECLARING A MAJOR

Regulations and procedures for declaring a major vary for the College and each school. Students in the College of Letters and Science do not need to declare a major in their freshman year and can attend with an undeclared major until the end of their sophomore year. Certain schools require students to choose a major when applying for admission, or require early declaration. Check specific policies for declaration with the school or department adviser.

All students must declare a major by the beginning of their junior year (90 quarter units). To declare a major, obtain a Petition to Declare a Major at the College or school office. There is no fee for the petition.



INDIVIDUAL MAJORS

Highly motivated students who find that no single major accommodates their specific interest in a given subject may propose designing their own major. Proposals are prepared with faculty guidance and sponsorship and are thoroughly

examined for cogency, completeness, and academic merit. Requirements for individual majors vary among the College and schools.

CHANGING MAJORS

Changing majors requires the approval of the College or school and the department. To change majors, obtain a Petition for Change of Major at the department office.

DEGREE REQUIREMENTS

As soon as they are accepted for admission to UCLA, new students should learn the requirements necessary to receive a bachelor's degree and begin planning an appropriate program of study. All undergraduate students must satisfy three types of requirements for a degree:

1. University requirements
2. College or school requirements
3. Department requirements

UNIVERSITY REQUIREMENTS

The University of California has established two requirements that all undergraduate students must satisfy in order to graduate: Entry-Level Writing or English as a Second Language (ESL), and American History and Institutions. It is each student's responsibility to see that these requirements are fulfilled.

ENTRY-LEVEL WRITING

Because proficiency in English composition is so important to successful performance in many courses, Entry-Level Writing is the only requirement for graduation that students must satisfy before entering UCLA or during their first year in residence. They may meet this requirement by

1. Scoring 3, 4, or 5 on one of the College Board Advanced Placement Tests in English OR
2. Scoring 5, 6, or 7 on the International Baccalaureate High Level English A Examination or scoring 6 or 7 on the International Baccalaureate Standard Level English A Examination OR
3. Scoring 680 or higher on the SAT II Subject Test in Writing (last offered in January 2005) or on the SAT Reasoning Test Writing Section OR
4. Scoring 30 or higher on the ACT Combined English/Writing test OR
5. Presenting transfer credit for an acceptable college-level course in English composition (passed with a grade of C or better) at another institution OR
6. Passing the University of California Analytical Writing Placement Examination (all freshmen from California high schools should have taken the examination during the month of May before they enrolled; others take an examination at UCLA early in their first term)

If students do not meet the requirement in one of the ways described above, Academic Senate regulations require them to enroll in English Composition A, 2, or 2I (determined by performance on the Analytical Writing Placement Examination) as early as possible during their first year in residence. Each course must be taken for a letter grade and passed with a grade of C or better. Students receiving a final grade of C- or less must repeat the course during their next term in residence. Satisfaction of the Entry-Level Writing requirement is a requisite to English Composition 3 and all subsequent English courses.

For further information, see <http://www.ucop.edu/clwr/index.html>.

ENGLISH AS A SECOND LANGUAGE

All entering UCLA students whose native language is not English and who have not otherwise satisfied the English as a Second Language (ESL) requirement may be required to take the Analytical Writing Placement Examination (AWPE) or the English as a Second Language Placement Examination (ESLPE). Neither the Test of English as a Foreign Language (TOEFL) nor any other English proficiency test can be submitted or accepted in lieu of the AWPE or ESLPE. Undergraduate students may take the AWPE or ESLPE once only. Unauthorized retakes of the examinations result in an invalid examination score.

First-year undergraduate students do not need to take the ESLPE. Students who have not otherwise satisfied the Entry-Level Writing requirement and who have not taken the AWPE by the time they enter UCLA must take it in their first term at UCLA. Results of the AWPE are reviewed to determine whether students should complete the ESL requirement, prior to satisfying the Entry-Level Writing requirement, in order to demonstrate sufficient command of English. If held for the ESL requirement, students must complete the requirement by taking the designated ESL courses.

Transfer students who have completed the English Composition 3 and English 4W equivalent courses at their transfer institution may nonetheless be held for the UCLA ESL requirement at the discretion of Undergraduate Admissions and Relations with Schools (UARS). This includes but is not limited to all students who received a grade below B in either of these equivalent courses. Any transfer student held by UARS to the ESL requirement must take the ESLPE prior to or during the term in which they are to register. Failure to sit for the ESLPE results in a hold on student records. Depending on the ESLPE results, students may be required to successfully complete one or more courses in the English as a Second Language series to satisfy the ESL requirement.

Results of the ESLPE are used to determine placement into the required sequence of ESL courses or exemption from the ESL requirement. In the case of a non-passing score on the examination, students are placed in one or more of the credit-bearing courses—English as a Second Language 33B, 33C, and 35. Students must begin taking courses during their first term in residence at UCLA and must complete each course in sequence with a grade of C or better (C– or a Passed grade is not acceptable). All units are applied toward graduation but cannot be applied toward general education requirements. Certain ESL courses provide upper division elective units.

AMERICAN HISTORY AND INSTITUTIONS

The American History and Institutions requirement is based on the principle that a U.S. citizen attending an American university should understand the history and public institutions of the U.S. under the federal and state constitutions. Candidates for a bachelor's degree must satisfy the American History and Institutions requirement by one of the following methods:

1. Completing a year's course in American history or American government, or a one-year combination of both, in high school with an average grade of B or better OR
2. Completing any one of the following UCLA courses with a grade of C or better, or a grade of Passed:
 - Afro-American Studies M158A, M158B, M158C, M158E
 - Asian American Studies M171D
 - Chicana and Chicano Studies M159A, M159B, M183
 - Economics 183
 - Geography 136
 - History 13A, 13B, 13C, 138A, 138B, 138C, 139A, 139B, 140A, 140B, 140C, 141A, 141B, 142A, 142B, 142C, 143A, 143B, 144, M144C, 145A, 145B, 146A through 146D, 147A through M147D, 149A, 149B,

M150A through M150E, M151A, M151B, M151C, 152, 153, 154, M155, 156

Political Science 40, 114A, 114B, 140A, 140B, 140C, 142A, 143A, 143B, 145B, 145C, 146A

Equivalent courses completed in UCLA Extension or at another college institution, and accepted by the Board of Admissions, may be used to fulfill the requirement OR

3. Presenting a satisfactory result of the requirement, by examination, as administered at another college or university within the state OR
4. Scoring 500 or better on the SAT Subject Test in U.S. History OR
5. Scoring 3, 4, or 5 on the College Board Advanced Placement Test in American History.

Candidates for an instructional credential, but not for a degree, must take one of the following courses: History 143A, 143B, Political Science 145B, or 145C.

Students attending the University on an F-1 or J-1 visa may petition for exemption from this requirement by showing proof of temporary residence in the U.S.

For more information on this requirement, contact the undergraduate History Department counselor in 6248 Bunche Hall, (310) 825-3720.

COLLEGE OR SCHOOL REQUIREMENTS

The College and each school with undergraduate programs establish their own degree requirements. These generally include a (1) unit requirement that defines the total number of units to be completed, (2) scholarship requirement that defines a minimum grade-point average, (3) residence requirement that defines the amount of study that must be undertaken in residence at the UCLA campus, and (4) course requirements that may include general education courses, reading and composition courses, foreign language courses, and core courses for the field of study. See the College and Schools section of this catalog for details on requirements set by the College and by each of the schools.

DEPARTMENT REQUIREMENTS

Each department or interdepartmental program sets its own degree requirements in addition to those established by the College or school. Department requirements generally include (1) preparation for the major, which are lower division courses designed to prepare students for advanced study and (2) the major, which are upper division course requirements. Requirements for each department are listed in the Curricula and Courses section of this catalog.



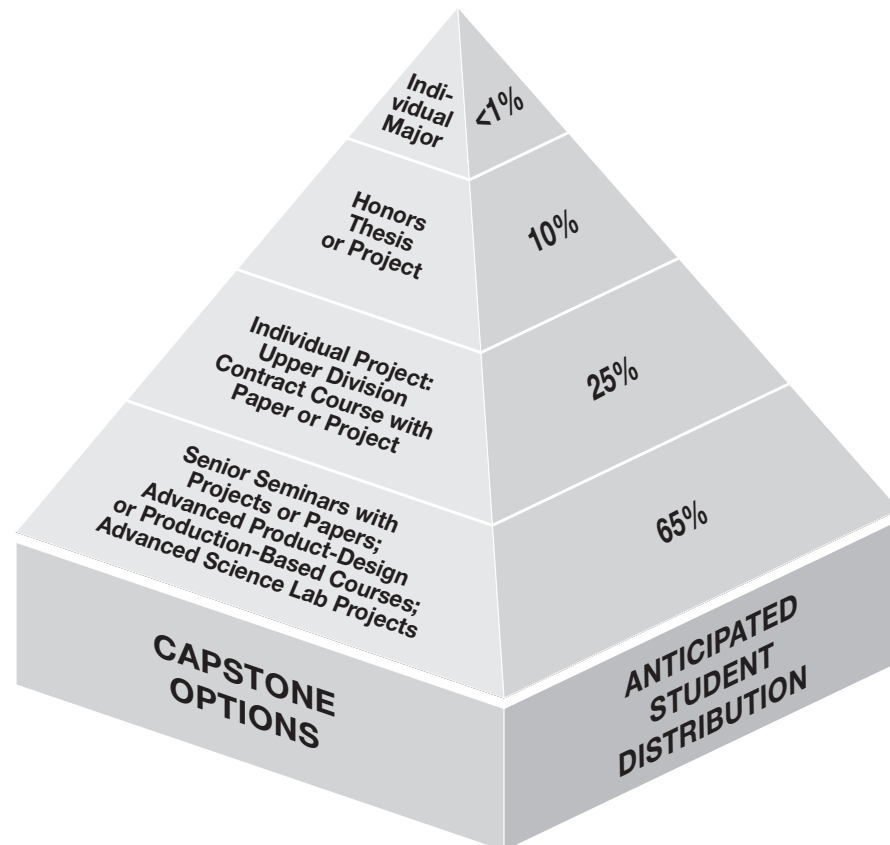
DEGREE POLICIES

Students are responsible for degree policies and regulations as described in the Academic Policies section of this catalog.

CAPSTONE MAJORS

Capstone majors provide students with the opportunity to demonstrate mastery and integration of knowledge and learned abilities in an active context within a discipline. Capstones engage a student's individual creativity, research abilities, artistic or critical proficiency, personal reflection, and/or capacity for teamwork. Capstones range from yearlong sequences of

courses or tutorials to a single seminar, and from honors theses to comprehensive seminar projects or internships. They may be based in tutorials, laboratories, advanced courses, or seminars, and may include either individual or team-based projects. Capstone majors are designed to be the culmination of a UCLA undergraduate experience. So far, 34 majors have revised their curricula and have been designated capstone majors.



Capstone majors are identified in the Curricula and Courses section of this catalog.

Aerospace Engineering B.S.

Art B.A.

Bioengineering B.S.

Chemical Engineering B.S.

Civil Engineering B.S.

Classical Civilization B.A.

Individual Field of Concentration B.A.

Individual Field of Concentration B.S.

Computer Science B.S.

Computer Science and Engineering B.S.

Ecology, Behavior, and Evolution B.S.

Electrical Engineering B.S.

Environmental Science B.S.

Ethnomusicology B.A.

European Studies B.A.

Film and Television B.A.

Geology B.S.

Geology/Engineering Geology B.S.

Global Studies B.A.

Greek B.A.

Greek and Latin B.A.

History B.A.

Latin B.A.

Marine Biology B.S.

Materials Engineering B.S.

Mathematics/Atmospheric and Oceanic Sciences B.S.

Mechanical Engineering B.S.

Music B.A.

Music History B.A.

Neuroscience B.S.

Nursing (Generic/Prelicensure) B.S.

Spanish and Community and Culture B.A.

Statistics B.S.

Theater B.A.

UNDERGRADUATE RESEARCH

UNDERGRADUATE RESEARCH CENTERS

The Undergraduate Research Centers (URC) assist students in the arts, humanities, and social sciences (A334 Murphy Hall, 310-825-2935, <http://www.ugeducation.ucla.edu/urhass/>) and in science, engineering, and mathematics (2121 Life Sciences, 310-794-4227, <http://www.ugeducation.ucla.edu/urc-care/>) by supporting scholarly, critical, and creative research. The centers provide mentoring and tutorials, manage the Student Research Program (SRP), and administer research stipends and scholarships. They also sponsor three student-run publications—the *Undergraduate Science Journal*, *Aleph* humanities and social sciences journal, and *Westwind* literary journal; organize campuswide conferences and events; and coordinate the Student Research Forum that promotes a broader and deeper understanding of university research and helps entry-level student researchers define their place in the larger research community. See <http://www.ugresearch.ucla.edu>.

CENTER FOR ACADEMIC AND RESEARCH EXCELLENCE

The Center for Academic and Research Excellence (CARE) provides enrichment opportunities for students majoring in the sciences, engineering, and mathematics who seek careers in scientific research and teaching and whose success through graduate training will increase the numbers of historically underrepresented individuals in academic and technological fields. CARE offers a variety of research opportunities during the academic year and summer that provides students the financial support to dedicate themselves to research. CARE programs, many sponsored by grants through federal agencies such as the National Institutes of Health (NIH) and the National Science Foundation (NSF), are for UCLA students as well as students from other universities. Offices are in 2121 Life Sciences. See <http://www.ugeducation.ucla.edu/urc-care/>.

STUDENT RESEARCH PROGRAM

Administered by each Undergraduate Research Center, the Student Research Program offers undergraduates, especially lower division and first-year transfer students, opportunities to become actively involved in the University research community. Working with faculty members on research projects, SRP students gain valuable research training and experience, as well as preparation for advanced undergraduate work and graduate school. Students enroll in course 99 in any department and receive 1 unit of course credit for each 30 hours of research completed during the term. See <http://www.ugeducation.ucla.edu/urc-care/srp.htm> or <http://www.ugeducation.ucla.edu/urhass/student-research.htm>.

UNDERGRADUATE RESEARCH FELLOWS PROGRAM

The Undergraduate Research Fellows Program (URFP) is available on a competitive basis and by application for undergraduate students who have financial need and who want to participate in two terms of research (Winter and Spring Quarters) through SRP. Applications are accepted during Fall Quarter only, and the deadline for submission of applications is November 30. See <http://www.ugeducation.ucla.edu/urc-care/scholarfp.htm> or <http://www.ugeducation.ucla.edu/urhass/scholarships.htm>.

UNDERGRADUATE RESEARCH SCHOLARS PROGRAM

The Undergraduate Research Scholars Program (URSP) offers scholarships from foundations, industry, and individual donors to continuing students (junior-level standing and higher). Applicants must have a strong commitment to research and must complete an honors thesis or a comprehensive independent studies project during the senior year. Applications are accepted during Spring Quarter for the following academic year. See <http://www.ugeducation.ucla.edu/urc-care/scholarssp.htm> or <http://www.ugeducation.ucla.edu/urhass/scholarships.htm>.



ACADEMIC RESEARCH COURSES

All academic departments offer undergraduate research courses that allow students to obtain academic credit for their research experiences. Students enrolled in the courses are often upper division students with Student Research Program experience. Department requirements for credit vary, but all departments require a research proposal to enroll in upper division tutorial courses and a research report to receive credit when the research project is completed. Senior students working toward honors or highest honors in many majors must complete a two-term (or more) research project that culminates in an honors thesis. Arrangements must be made with a faculty mentor before students can register for the course. See the undergraduate adviser in the department of interest for more information.

INTERNSHIPS AND SERVICE PROGRAMS

Rewarding opportunities in the form of internships, community service work, industry and business positions, local, national, and international programs, and community-based teaching provide students with insights into a range of professional fields and the chance to apply academic theories firsthand.

INTERNSHIPS AND INTERNATIONAL OPPORTUNITIES

Internships and International Opportunities (IIO), a service of the UCLA Career Center, offer advice and leads for work-learn experiences in the U.S. and abroad. IIO is located in the Career Lab on the second floor of the Strathmore Building, (310) 206-1915, and features an extensive library of resources. See <http://career.ucla.edu/internships/>.

WASHINGTON, DC, INTERNSHIP PROGRAM

The Washington, DC, program allows students to complete 10-week summer internships in the nation's capital. Internships are available with elected officials, government agencies, public interest groups, international organizations, the media, and a wide range of public and private enterprises. Stipends and housing support are available to students through the program.



INTERNATIONAL OPPORTUNITIES

IIO advises students on international fellowships, internships, volunteer programs, short-term work, and teaching assignments outside the U.S.

INTERNSHIP AND FELLOWSHIP SUPPORT

Career Center counselors and peer advisers offer ideas and advice on internship and fellowship programs. Résumé reviews, personal statement critiques, and search tips are just a few of the services available on a drop-in basis and by appointment.

QUARTER IN WASHINGTON, DC

The Center for American Politics and Public Policy (CAPPP) selects undergraduates each fall, winter, and spring to participate in its Quarter in Washington Program. The program offers an exciting opportunity to combine UCLA courses with research and field experience. Students live at the UC Washington Center for up to 12 weeks, dividing their time between courses taught by UC faculty members and a part-time internship placement. They are registered as UCLA students and earn UC credit in multiple majors (by petition) for all classes taken. The core course, a research development seminar, is multiple-listed in political science, sociology, and history, meets the capstone requirement for the Public Affairs minor, applies toward the Civic Engagement minor, and is eligible for College Honors by petition. At least one course in a subject other than political science, such as economics or history, is usually offered each quarter. All courses take advantage of Washington's unique resources for study and research.

Center administrators help students find a field placement that complements a substantial research project. Placements have included ABC News, the Brookings Institute, CNN, the Department of Justice, the Ken-

edy Center, Studio Theatre, the Center for Strategic and International Studies, and various members of Congress. For information, contact the CAPPP office by e-mail at info@cappp.ucla.edu or call (310) 206-3109. See <http://www.cappp.ucla.edu/quarterinwashington/>.

RESERVE OFFICERS' TRAINING CORPS

The University of California, in accordance with the National Defense Act of 1920 and with the concurrence of The Regents, offers courses and programs in military training. This voluntary training allows students to qualify for an officer's commission in the Army, Navy, Air Force, or Marine Corps while completing their college education. ROTC courses are offered by three departments within the College of Letters and Science: Aerospace Studies (Air Force), Military Science (Army), and Naval Science (Navy and Marine Corps). Equipment, uniforms, and textbooks are provided. The programs provide a monthly stipend to eligible students while on contract and additional financial benefits, including tuition and fee scholarships, to qualified students. Individual programs are described in the Curricula and Courses section of this catalog.

TEACHING OPPORTUNITIES

Exciting teaching programs prepare undergraduate students for careers in teaching or education and allow them to serve in classrooms in the Los Angeles area. Many teaching opportunities are offered in conjunction with the Graduate School of Education and Information Studies (GSE&IS), which helps coordinate programs leading to various instructional credentials or to graduate study.

EDUCATION STUDIES MINOR

The Education Studies minor provides a sequence of core and elective courses designed to introduce students to key issues, research, and policies in education. Students participate in a range of seminar and practicum courses to fulfill program requirements. The program office is in 1009 Moore Hall. See <http://www.gseis.ucla.edu/edminor/> and the program description in the Curricula and Courses section of this catalog.

MATHEMATICS/EDUCATION PROGRAM

The Mathematics/Education Program, offered jointly by GSE&IS and the Department of Mathematics, leads to a teaching credential and master's degree in education for mathematics majors pursuing a career in secondary school teaching. The program offers courses in education for students completing courses required for a Bachelor of Science degree in a major within the Department of Mathematics. During their senior year, participants serve as teaching interns in an observational teaching program under the direction of a teaching coordinator. During the year following graduation, students take additional graduate courses and teach full-time in a secondary classroom with a full salary. For information, contact Mathematics Student Services, 6356 Math Sciences. See <http://www.curtiscenter.math.ucla.edu/undergraduate.html>.

SCIENCE TEACHER EDUCATION PROGRAM

The Science Teacher Education Program (STEP), cosponsored by the College and GSE&IS, allows science majors to observe and participate in classrooms in schools in the Los Angeles area and to begin teacher education courses. Students earn a master's in education and a teaching credential in one academic year beyond the baccalaureate. For details, e-mail Dr. Arlene Russell at russell@chem.ucla.edu or contact any science department undergraduate counseling office. See <http://www.college.ucla.edu/cateach/>.

TEACHER EDUCATION PROGRAM

The Teacher Education Program allows students to obtain both a Master of Education degree and a preliminary multiple or single subject credential in a full-time, two-year program that provides clinical classroom experience and has students employed as full-time teachers in their second year. See <http://centerx.gseis.ucla.edu/teacher-education/>.

TEACHLA AND TEACHCOMPTON

TeachLA and TeachCompton are University Internship Programs associated with GSE&IS. University interns are full-time employees of Los Angeles Unified School District or Compton Unified School District and engage in five terms of credential coursework and fieldwork. On successful completion, interns receive a preliminary multiple or single subject credential. The program is a collaboration between GSE&IS, Los Angeles Unified School District, Compton Unified School District, United Teachers Los Angeles, and UCLA Extension. See <http://centerx.gseis.ucla.edu/teacher-education/pathways/teachla-teachcompton/>.

UCLA CALIFORNIA TEACH

The UCLA California Teach program encourages and supports undergraduate students who are interested in exploring K-12 mathematics and science teaching as a potential career. Courses include 30 hours of observation, participation, and assisting in K-12 schools, and seminars to support those field experiences. See <http://www.college.ucla.edu/cateach/> or call (310) 794-2191.

UCLA CENTER FOR COMMUNITY LEARNING

The UCLA Center for Community Learning serves faculty members, undergraduate students, and community partners through academic courses and programs, including credit-bearing internships, service learning courses, community-based research, and AmeriCorps service scholarships. It is home to the undergraduate minor in Civic Engagement, the only one of its kind among research universities. The office is in A265 Murphy Hall, (310) 825-7867. See <http://www.communitylearning.ucla.edu>.

UNIVERSITY OF CALIFORNIA CENTER SACRAMENTO

The University of California Center Sacramento (UCCS) is operated by UC Davis and cosponsored by the UC Office of the President. The center's long-term goal is to

bring together UC faculty members with undergraduate and graduate students to pursue research related to state government, politics, and public policy.

During Fall, Winter, and Spring Quarters, the residential program offers students an opportunity to participate in an intensive internship course and enroll in a research seminar that investigates policy issues related to the internship. A political journalism program is available during the summer. UCCS is open to all juniors and seniors with a 3.0 grade-point average. Contact the UCLA Center for Community Learning, A265 Murphy Hall, (310) 825-7867, for more information. See <http://www.communitylearning.ucla.edu/uc-center-sacramento.html> and <http://uccs.universityofcalifornia.edu>.

LOWER DIVISION SEMINAR PROGRAMS

COLLEGIUM OF UNIVERSITY TEACHING FELLOWS

The Collegium of University Teaching Fellows (CUTF) offers outstanding graduate students the opportunity to develop and teach lower division seminars in their area of expertise. These unique courses cover all areas, from the humanities to the life, physical, and social sciences. Undergraduate students take courses that are at the cutting edge of a discipline and benefit from a small-seminar environment. GE and honors credit is granted for most seminars, which are offered in Winter and Spring Quarters only. Enrollment is limited. For further information, contact the Office of Instructional Development, 70 Powell Library, (310) 206-8998. See <http://www.oid.ucla.edu/students/cutf/>.



HONORS COLLEGIUM

The Honors Collegium, a series of interdisciplinary honors courses, offers a unique educational experience where students learn how to think critically and creatively and how to communicate effectively. Courses emphasize the breadth of an interdisciplinary approach to learning and focus on small classes and individual attention. See <http://www.honors.ucla.edu/hchome.html>.

FIAT LUX FRESHMAN SEMINAR PROGRAM

Fiat Lux seminars provide students with an opportunity to share ideas in class—an important academic skill that can be acquired only through practice. These 1-unit seminars, taught by distinguished faculty members from across UCLA, introduce freshman students

to topics of intellectual importance and encourage them to participate in critical discussions with a small group of peers. The program takes its name from the motto of the University of California: *Fiat Lux – Let There be Light!* For details about seminar offerings each term, see the *Schedule of Classes* at <http://www.registrar.ucla.edu/schedule/>. For more information, see <http://www.fiatlux.ucla.edu>.

ADVISING AND ACADEMIC ASSISTANCE

Academic assistance is available in the form of staff and student counselors, faculty advisers, student services, tutorials, and special programs.

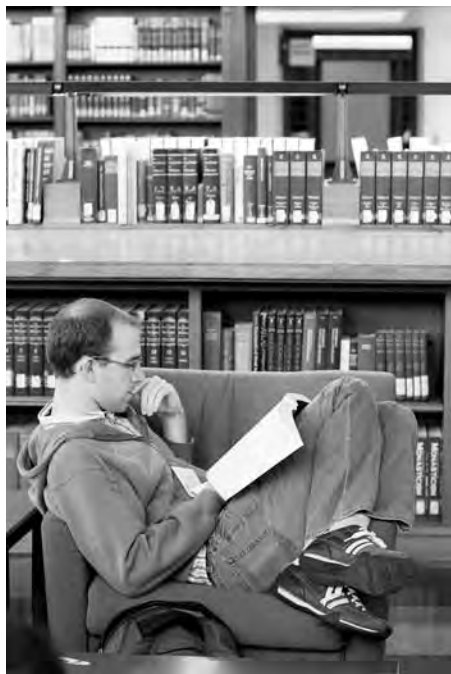
NEW STUDENT AND TRANSITION PROGRAMS

UCLA's New Student and Transition Programs welcome new undergraduate students to UCLA and ease their transition into and throughout the first year. Summer Orientation introduces students to UCLA through academic counseling and educational planning and orients students to all the special programs available to them. During Summer Orientation, students work in small groups with peer counselors and gain insight into necessary academic skills. They learn how to plan their academic program and become familiar with educational opportunities, student services, and facilities available at UCLA.

Individual counseling sessions help students adjust to University life and fulfill the advising requirements of the College or school. Sessions for family members are also offered.

Summer Orientation offers three-day, two-night residence hall live-in programs for first-year students and one-day programs for transfer students. There is a fee for participation.

During the academic year, additional programs are offered to provide academic advising and successful transition to the second year. For more information, contact the New Student and Transition Programs office in 201 Covell Commons, (310) 206-6685. See <http://www.newstudents.ucla.edu>.



COLLEGE AND SCHOOL ADVISERS

The College and each school and academic department at UCLA have a staff of academic counselors and advisers to help students plan their academic program, monitor their progress toward the bachelor's degree, provide information about degree requirements, and

assist with academic problems. See the *Schedule of Classes* for a listing of counselors and advisers.

ASK PEER COUNSELORS

The ASK Peer Counseling Program is an extension of College Academic Counseling. ASK peer counselors are undergraduate students from the College of Letters and Science trained to respond to student questions and concerns in several convenient settings. No appointments are required, just walk up and ASK. Peer counselors make referrals and provide information about academic rules and regulations, deadlines, and petitions and, as peers, can provide valuable personal experience.

Students can find ASK peer counselors weekdays when school is in session at various locations across campus. For details about locations and operating hours, see <http://www.college.ucla.edu/ask/>. Students may also e-mail questions to ask@college.ucla.edu.

COLLEGE ACADEMIC MENTORS

Letters and Science college academic mentors (CAMs) are graduate students who mentor primarily undergraduate lower division students to successfully navigate a large research university. In addition to addressing issues related to academic success, CAMs provide information and referrals to campus resources that focus on undergraduate achievement. Many CAMs have served as teaching assistants and can give unique perspectives on faculty members, course selection, major requirements, and preparation for and application to graduate school. See <http://www.ugeducation.ucla.edu/counseling/counselors/cams.htm>.

For appointments, go to Window 1, A316 Murphy Hall. CAMs are also available in selected departments and through <http://my.ucla.edu> via the Virtual Counseling link.

ACADEMICS IN THE COMMONS

Academics in the Commons (AITC) offers registered UCLA undergraduate students peer learning assistance, workshops, peer mentoring, and other resources geared toward developing academic skills and an awareness of campus resources. AITC is located on the second floor of Covell Commons in Sunset Village. For details on available services, see <http://www.aitc.ucla.edu>.

COVELL PEER LEARNING LABORATORIES

Covell Peer Learning Laboratories offer undergraduate students free learning support designed to improve academic skills such as writing proficiency, study habits, critical thinking, and independent learning. See <http://www.aitc.ucla.edu/learning.htm>.

Athletics Laboratory

In cooperation with the Department of Intercollegiate Athletics, the Athletics Laboratory provides academic support to student-athletes whose practice and competition schedules are not compatible with other Covell Peer Learning Laboratory schedules. Eligible student-athletes can request learning assistance in 209 Covell Commons, (310) 206-7526.

Composition/ESL Laboratory

The Composition/ESL Laboratory provides academic support to students who desire writing help, including assistance in critically evaluating writing skills, understanding course writing objectives, generating analytical ideas, formulating compelling theses, organizing and supporting arguments logically, and revising papers. Students may drop in for assistance or schedule an individual appointment. During the summer, the Composition/ESL Laboratory provides speaking, listening, comprehension, and reading assistance for ESL students. Eligible students can request learning assistance in 237 Covell Commons, (310) 825-1379.

Mathematics/Science Laboratory

The Mathematics/Science Laboratory provides academic support to students in selected introductory courses in chemistry, life sciences, mathematics, and physics. Students may participate in scheduled weekly group meetings or drop in for assistance. Specific course information is listed at <http://www.aipc.ucla.edu/learning.htm>, and students can request learning assistance in 237 Covell Commons, (310) 825-1379.

PEER ADVISING/MENTORING

AIPC trains UCLA undergraduate students to promote academic success through academic advising and peer mentorship. See <http://www.aipc.ucla.edu/advising.htm>.

Academic Advising Assistance Desk

Peer mentors are trained by the College of Letters and Science and are available to answer basic academic questions related to College policies. Peer mentors can also assist in making appropriate referrals to other campus services and resources. The assistance desk is staffed Monday through Thursday from 1 to 5 p.m. and is located on the second floor of Covell Commons.

Peer Advising Network (PAN)

Peer mentors are available to meet one-on-one with first-year freshman and transfer students. During August and September, students may sign up in person at 237 Covell Commons or online at <http://my.ucla.edu>.

WORKSHOPS

AIPC workshops are led by undergraduate students and focus on topics such as personal development, academic skills, and professional or career exploration. Workshops are free, and students can sign up online at <http://my.ucla.edu>. See <http://www.aipc.ucla.edu/workshops.htm>.

ACADEMIC ADVANCEMENT PROGRAM

The Academic Advancement Program (AAP), a multiracial program, has a threefold mission: (1) to ensure the academic success, retention, and graduation of its students, (2) to increase the numbers of its students entering graduate and professional schools, and (3) to develop the academic, political, scientific, economic, and community leadership necessary to transform society in the

twenty-first century. Programs are oriented toward furthering long-term academic and personal growth.

Students are eligible for AAP if their academic profiles and personal backgrounds may impact their University experience and their retention and graduation from UCLA. Students are also eligible if they are part of any federally funded program that requires counseling, tutoring, or mentoring. For more information, contact AAP New Student Programs in 1230 Campbell Hall, (310) 206-1571. See <http://www.aap.ucla.edu>.

ACADEMIC COUNSELING

Counselors at AAP encourage students to explore their talents, believe in themselves, and aspire to academic and personal excellence. Counselors work with students to plan their academic programs, monitor progress toward the degree, provide information about degree requirements, and discuss graduate school and career options. See <http://www.aap.ucla.edu/counseling/> or call (310) 825-1481.

PEER COUNSELING

Peer counselors are upper division AAP students who assist entering students with the transition to the University and provide them with a perspective on life at UCLA. See http://www.aap.ucla.edu/counseling/peer_counselors.html or call (310) 825-1481.

PEER LEARNING LABORATORIES

AAP peer learning services promote academic excellence in over 450 courses. Most peer learning facilitators are upper division AAP students who provide the intellectual challenge, encouragement, and personal support that students need to recognize their own authority as thinkers and learners. Most facilitating is done in small groups that foster discussion and allow students to listen to and articulate new and different perspectives. See http://www.aap.ucla.edu/peer_learning/ or call (310) 206-7771.



PROGRAM LEADING TO UNDERGRADUATE SUCCESS

The Program Leading to Undergraduate Success (PLUS) is a federally funded component of AAP that provides intensive counseling, tutoring, workshops, and social and cultural programs for first-generation college, low-income freshmen. Applications are available at 1209 Campbell Hall, (310) 825-9276. See <http://www.aap.ucla.edu/plus/>.

CENTER FOR COMMUNITY COLLEGE PARTNERSHIPS

The Center for Community College Partnerships (CCCP) develops academic partnerships between California community colleges and the University to

strengthen and diversify curriculum, create strong academic support programs, improve student competitiveness for UC admissions, and increase the diversity of the UCLA transfer admit pool. CCCP offers a Peer Mentoring Program and several summer programs to help prepare students for transfer to a four-year university. See <http://www.aap.ucla.edu/cccp/or> call (310) 267-4441.

MENTORING PROGRAMS

AAP offers several programs aimed at helping students achieve academic and professional goals.

Community Development and Social Justice Program

The Community Development and Social Justice Program (CDSJ) assists undergraduate students interested in graduate and professional schools. The program works with the Schools of Public Affairs and Public Health to increase their enrollment of AAP students committed to working toward social equity. Students work as interns, under the supervision of a professional staff member, at a community-based organization. See <http://www.aap.ucla.edu/mentoring/cdsj.html> or call (310) 794-4186.

Educators for Tomorrow Scholars Program

The Educators for Tomorrow (EFT) Scholars Program aims to advance a new generation of socially conscious leaders interested in careers in education. It provides AAP students with opportunities to meet faculty members and students in the Graduate School of Education and Information Studies and to get involved in community service programs, internships, and service learning courses. Students in the program work with teachers at local public schools as volunteers and participate in educational roundtables. See <http://www.aap.ucla.edu/mentoring/eft.html> or call (310) 794-4186.



Graduate Mentoring Program

The AAP Graduate Mentoring Program (GMP) offers all AAP students the opportunity to obtain valuable research-oriented academic preparation in virtually any academic major, including science, mathematics, engineering, social sciences, and arts and humanities. The program initiatives are designed to encourage students to pursue Ph.D. degrees, medical degrees, and other advanced degrees by providing them research experience under the guidance of graduate mentors. See <http://www.aap.ucla.edu/mentoring/gmp.html> or call (310) 794-4186.

McNair Research Scholars Program

The McNair Research Scholars Program prepares undergraduate students for the best graduate programs in the country and to excel in graduate school on the way to earning a Ph.D. in the humanities or social sciences. The program maintains a cohort of 26 students annually from those populations most severely underrepresented in graduate programs and the professoriate

in 11 targeted departments in the humanities, social sciences, and behavioral sciences. See <http://www.aap.ucla.edu/mentoring/mcnair.html> or call (310) 794-4186.

Research Rookies Program

The Research Rookies Program gives first- and second-year AAP undergraduate students the opportunity to develop entry-level research projects in the humanities and social sciences. Over two academic terms, students meet regularly with graduate mentors and a faculty member. See <http://www.aap.ucla.edu/mentoring/rookies.html> or call (310) 794-4186.

SCHOLARSHIPS

There are many opportunities for eligible students in AAP to receive both merit and/or need-based scholarship funds. Some awards require application; others are available through nomination. Call (310) 206-1805 for further information.

SUMMER PROGRAMS

AAP's six-week intensive academic residential summer program for incoming freshman and transfer students prepares historically underrepresented, low-income, and first-generation college-going students with the academic rigors and demands of a research university. Students are able to build a network of academic resources and friends prior to the regular school year that provides interaction with students from diverse backgrounds and broadens life experiences.

Students enroll in two or three University courses that meet UCLA requirements for graduation and receive support in small groups or individual sessions from teaching assistants and peer learning facilitators. Freshmen have the option of taking classes offered in the writing or mathematics/science intensive programs. Transfer student preparation involves the social sciences. Academic counselors are available to assist students in shaping their educational plan toward graduation. See <http://www.aap.ucla.edu/summer/> or call (310) 206-1571.

ACADEMIC EXCELLENCE

Eligible students receive the following honors and awards in recognition of academic achievement.

DEAN'S HONORS LIST

The School of the Arts and Architecture, Henry Samueli School of Engineering and Applied Science, School of Nursing, School of Theater, Film, and Television, and the deans of the five divisions in the College of Letters and Science award Dean's Honors to deserving students each term. Honors are based on the grade-point average attained within a specified number of units. Consult the College or school for further information.

LATIN HONORS

The College and schools award Latin honors according to overall grade-point average at graduation. To be eli-

gible students must have completed at least 90 (98 for the School of Nursing) University of California units for a letter grade. The levels of honors are *summa cum laude*, *magna cum laude*, and *cum laude*. Specific requirements vary for each level and are detailed in the College and Schools section of this catalog. See the *Schedule of Classes* for the most current calculations of Latin Honors.

DEPARTMENTAL HONORS

In the College of Letters and Science, departmental honors and highest honors are awarded at graduation on the recommendation of a student's major department, based on successful completion of a departmental honors program. Students should consult their department for its requirements.

DEPARTMENTAL SCHOLAR PROGRAM

Departments in the College of Letters and Science and each school, except the School of Nursing, may nominate exceptionally promising juniors and seniors as Departmental Scholars to pursue bachelor's and master's degree programs simultaneously. Nominations are submitted to the College or school dean for recommendation to the dean of the Graduate Division. Students interested in becoming Departmental Scholars should consult their departments well in advance of application dates for graduate admission (see the calendar at the beginning of this catalog).

HONOR SOCIETIES

ALPHA LAMBDA DELTA AND PHI ETA SIGMA

Membership in the national freshman honor societies is based solely on academic achievement during the freshman year. To be eligible students must have a 3.5 grade-point average with 12 graded University of California units in the first term of their freshman year, or a cumulative 3.5 GPA at the end of the second and/or third terms. Invitations are issued in Winter Quarter, and initiation is held during Spring Quarter. For more information, contact the Office of the Dean of Students, 1206 Murphy Hall, (310) 825-3871. See <http://www.aldpes.ucla.edu>.

GOLDEN KEY

Golden Key is an international interdisciplinary academic honors organization dedicated to excellence. Students qualify on the basis of objective academic criteria. No more than the top 15 percent of enrolled juniors and seniors may be eligible.

The society recognizes and encourages scholastic achievement and excellence in all undergraduate fields of study. It unites with collegiate faculties and administrators in developing and maintaining high standards of education, provides economic assistance to outstanding members by means of an annual scholarship for initiates and graduating seniors, and promotes scholastic achievement and altruistic conduct through voluntary service. Invitations are issued in Fall Quarter, and a reception is held in Winter Quarter. For further

information, contact the Office of the Dean of Students, 1206 Murphy Hall, (310) 825-3871. See <http://www.studentgroups.ucla.edu/goldenkey/>.

MORTAR BOARD

Mortar Board is a national honor society for college seniors that recognizes outstanding and continual scholarship, leadership, and service to the campus community.

To be considered for membership, candidates must have completed 90 units and must have attained at least a B average or be in the highest 35 percent scholastically of the junior class, whichever is higher. Applications are available at <http://www.studentgroups.ucla.edu/mboard/membership.html> early in Winter Quarter and are due by mid-February. Approximately 40 members are selected each spring by the outgoing chapter. See <http://www.studentgroups.ucla.edu/mboard/> or call (310) 206-5523.

PHI BETA KAPPA

Phi Beta Kappa is a national academic honors society in the humanities, liberal arts, and sciences, founded at the College of William and Mary in 1776. Membership is conferred for high scholastic standing and is determined by vote of the chapter council according to scholarship records. Students do not apply for Phi Beta Kappa membership.

At UCLA only graduating seniors and selected juniors are elected to membership. The annual election is held in May, with the initiation in June. At present, the minimum grade-point average considered is 3.67 (for 140 or more UC units); the minimum number of UC units considered is 90 (students at the 90-unit level must have at least a 3.85 GPA).

A reasonable distribution of courses in the humanities and sciences is also required. A Passed grade is computed approximately as a B, depending on number of courses taken and graded units. Students who are elected are notified by mail. For further information, contact Phi Beta Kappa in the Honors Programs Office, A311 Murphy Hall, (310) 206-9667. See <http://www.college.ucla.edu/pbk/>.



Graduate Study

Graduate students at UCLA benefit from—and contribute to—the resources of one of the country's outstanding research universities. A distinguished faculty committed to research and teaching, an extensive library system ranked among the best in the nation, and excellent research centers, institutes, and laboratories in virtually every major discipline all provide extraordinary opportunities for graduate endeavor.

Graduate training at UCLA takes place in the classrooms, the laboratories, the libraries, in specialized seminars, through independent research, and in teaching experiences. Graduate education is enriched by several hundred postdoctoral and visiting scholars from other universities who engage in research and, in some instances, teaching at UCLA every year. This unique research environment promotes the quality of original work and study that is the hallmark of graduate education.

The degree of Master of Arts or Master of Science, or one of several professional degrees such as Master of Business Administration, is intended to develop mastery of a field and prepare students for the practice of a profession. The doctoral degree (Ph.D., Ed.D., and so forth) is designed to prepare students for creative activity and original research, often in association with college or university teaching.

GRADUATE ADMISSION

Graduate Admissions/Student and Academic Affairs
1255 Murphy Hall
(310) 825-1711
<http://www.gdnet.ucla.edu>

Meeting the minimum requirements does not ensure graduate admission, which is limited by the number of places and the amount of student support available in UCLA's graduate programs. Applicants are evaluated on scholastic qualifications and formal preparation for the graduate field of study. Departments may have

other requirements for admission, which are listed by department at <http://www.gdnet.ucla.edu/gasaa/dept-info/deptinfointro.asp>.

APPLYING FOR ADMISSION

Prospective students may apply online at <http://www.gdnet.ucla.edu>.

WHEN TO APPLY

Most departments and schools have deadlines in November and December for the following Fall Quarter. Consult the Graduate Division website's Admissions section for specific deadlines for each major. Some departments also accept applications for Winter and Spring Quarters.

At the discretion of the department, applications may be considered if received after a program's stated deadline, provided the enrollment limits have not been exceeded.

APPLICATION FEE

A nonrefundable application fee is required when the application is submitted.

ENTRANCE REQUIREMENTS

U.S. applicants to graduate standing must hold a bachelor's degree from a regionally accredited institution comparable in standard and content to that awarded at the University of California. Degrees granted on the basis, for example, of nonacademic prior learning, test scores, and other than organized supervised coursework in academic subjects are not considered comparable. A scholastic average of B or better (or its equivalent if the letter grade system is not used) is required in the last two years of undergraduate coursework and in any postbaccalaureate study.

Requirements for international applicants are listed below.

SUPPORTING MATERIALS

Supporting papers and materials to be submitted, including official transcripts of record and the nonrefundable application fee, are specified at <http://www.gdnet.ucla.edu>. Submitted materials are not returnable.

GRADUATE RECORD EXAMINATION

Applicants who apply for admission to a department or school that requires Graduate Record Examination (GRE) scores should arrange to take the examination no later than December so scores arrive on time. GRE scores should be sent directly to the prospective department and not to the Graduate Division.



GRE applications and information about both paper and computer-based testing are available from offices of the Educational Testing Service, P.O. Box 6000, Princeton, NJ 08541-6000. For information on GRE fee waivers, see <http://www.ets.org>.

LETTERS OF RECOMMENDATION

Most graduate professional schools, departments, and interdepartmental programs at UCLA require applicants to submit three letters of recommendation. Letters typically augment, validate, or explain information provided in the application and should be written by people qualified to analyze students' abilities and academic promise.

INTERNATIONAL APPLICANTS

International applicants who have completed their postsecondary education outside the U.S. are expected to hold a degree, with above average scholarship, from a university or university-level institution. If their examinations have been graded Excellent, Very Good, Good, and Pass, applicants must have at least a Very Good general rating to qualify for admission. Applicants who hold a three-year Bologna degree may be considered for admission on the recommendation of the department, program, or professional school. Applicants who hold a three-year ordinary or pass degree, or who hold a professional diploma in accounting, business, librarianship, social work, physical education, health education, and so forth, or a four-year degree, diploma, or higher certificate from a technical, vocational, or postsecondary specialized school, should not apply for graduate admission. Persons with memberships in professional associations such as Institutes of Chartered Accountants, the Institute of Chartered Secretaries and Administrators, and so forth, also do not qualify for graduate admission unless they also hold recognized university-level degrees or titles.

Students should submit official transcripts of record, in the original language in duplicate, for all college and university work. The original of an academic record that cannot be replaced must not be sent; a properly certified copy should be sent instead. Specific information for applicants from a variety of educational systems is available at <http://www.gdnet.ucla.edu>.

Proficiency in English

International students who hold a bachelor's or higher degree from a university in a country where the official language is English and in which English is the spoken tongue and the medium of instruction are exempt from the Test of English as a Foreign Language (TOEFL) or the International English Language Testing System (IELTS) examination and the UCLA English as a Second Language Placement Examination (ESLPE). All other applicants must take the TOEFL, administered by the Educational Testing Service in some 95 foreign centers, or the IELTS, administered by IELTS test centers throughout the world. See <http://www.ielts.org> for the nearest test center. TOEFL applications are available from TOEFL Services, P.O. Box 6151, Princeton, NJ 08541-6151, (609) 771-7100, or at <http://www.ets.org>.

Students whose native language is not English are required to take the UCLA English as a Second Lan-

guage Placement Examination (ESLPE), in addition to the TOEFL or IELTS examination, before or during the term in which they are to register. Failure to sit for the ESLPE results in a hold on student records. Those

About the UCLA Graduate Division

The UCLA Graduate Division administers policy established by the Academic Senate and its Graduate Council for master's, doctoral, and graduate professional degree programs other than the professional degree programs in law, medicine, and dentistry, and for postdoctoral scholars. It oversees graduate recruitment and admissions (including the recruitment of a diverse student body), fellowships, teaching assistantships, graduate student researcher appointments, and other graduate student support, and the maintenance of high quality standards in all UCLA graduate programs. The dean of the Graduate Division also serves as vice chancellor of Graduate Studies.

GRADUATE COUNCIL. The Graduate Council is a standing committee of the UCLA Academic Senate. In keeping with the University's commitment to the philosophy of shared governance, the council is responsible for the establishment of policy and standards for graduate education and postdoctoral scholars at UCLA; the approval, review, and monitoring of graduate degree programs; and recommendations regarding fellowships and assistantships.

GRADUATE ADVISER. At matriculation, a graduate student usually selects or is assigned a graduate adviser who assists in program planning and completion of degree requirements. Sometimes this role is temporarily assumed by a faculty adviser assigned to the program as a whole. When the student's master's or doctoral committee is established, the chair of the committee assumes the adviser's role.

graduate students who believe that their initial ESLPE score is not reflective of their English language proficiency due to having recently arrived in the U.S. may sit for the examination a second time in the subsequent term only (retaking the examination in the same term is not counted as a valid result). In cases where students retake the examination in their second term of study, the most recent examination score is held to be valid. Unauthorized retakes of the examination result in an invalid examination score. Depending on the ESLPE results, students may be required to complete one or more courses in the English as a Second Language 33 series, beginning in their first term in residence at UCLA. The courses must be passed with a grade of C or better if taken for a letter grade, or B or better if taken on an S/U basis. Students should expect to spend a longer period of time at the University than would normally be necessary to complete a degree program if they are required to take any English as a second language courses. If they do not achieve a minimum score on the ESLPE, their admission is deferred until they have acquired the necessary proficiency in English. Neither the TOEFL, nor IELTS, nor any other English proficiency test can be submitted or accepted in lieu of the ESLPE.

Graduate students who plan to work as teaching assistants (TAs) and are nonnative English-speaking international students are required to take the Test of Oral Proficiency (TOP), which is administered by the Office of Instructional Development (OID). Students who do not plan to work as teaching assistants do not need to take the TOP.

For students receiving a clear pass (7.1 or above) on the TOP, no coursework is required. Students receiving a

marginal pass (between 6.4 and 7.0) are required to take an approved oral skills course either before or during their first term as teaching assistants. Students scoring 6.3 or below are not eligible to become teaching assistants and are encouraged to complete recommended coursework in English as a Second Language before taking the TOP.

No other oral examination is accepted. Entering graduate students who plan to work as teaching assistants in their first term at UCLA must arrive early enough to take the TOP before instruction begins. The examination schedule and other information about TOP are available at <http://www.oid.ucla.edu/top/> or call (310) 825-3106.

ADMISSION TO THE SCHOOLS OF DENTISTRY, LAW, AND MEDICINE

Applicants for M.S. and Ph.D. programs in departments of the School of Medicine or Dentistry should apply for admission to the Graduate Division as described above. For admission to D.D.S., J.D., LL.M., S.J.D., and M.D. degree programs in the Schools of Dentistry, Law, and Medicine, consult the websites or write to the respective schools for information and application procedures.

ADMISSION TO PROGRAMS IN MOLECULAR, CELLULAR, AND INTEGRATIVE LIFE SCIENCES

The life and basic biomedical sciences departments at UCLA offer a mechanism for a combined recruitment, admission, and first-year program that provides Ph.D. students in the molecular, cellular, and integrative life sciences with maximal choice and flexibility in selecting a research specialization. Through UCLA ACCESS to Programs in Molecular, Cellular, and Integrative Life Sciences, students are able to select research projects from faculty mentors according to changing perceptions, interests, and goals without regard to traditional departmental boundaries. The first year of each degree program has a common curriculum and advising structure.

The following Ph.D. programs use UCLA ACCESS to recruit and admit students: Biochemistry and Molecular Biology, Molecular Biology, Molecular, Cell, and Developmental Biology, and Molecular, Cellular, and Integrative Physiology in the College of Letters and Science; Oral Biology in the School of Dentistry; Biological Chemistry, Cellular and Molecular Pathology, Human Genetics, and Molecular and Medical Pharmacology in the David Geffen School of Medicine; Molecular Toxicology in the School of Public Health; and Microbiology, Immunology, and Molecular Genetics in the College of Letters and Science and the School of Medicine.

Admission

Applicants apply to UCLA ACCESS rather than to an individual department and must have completed an undergraduate major in a life or physical sciences discipline with superior scholastic achievement. Students should have preparation in physics, biology, and chemistry, as well as specialized courses within the major

that may include cell biology, neurobiology, immunology, structural or computational biology, microbiology, virology, plant molecular biology, developmental biology, biochemistry, or molecular biology. In certain cases, background deficiencies may be remedied concurrently with graduate studies if recommended by the UCLA ACCESS steering committee. In addition to the UCLA Application for Graduate Admission, students should submit their scores on the Graduate Record Examination (GRE) General Test (Subject Test is optional) and three letters of recommendation from individuals who can provide direct knowledge of their academic record and potential for superior achievement in independent research. Admission is limited to Fall Quarter.

Obtain applications and information from the Program Coordinator, UCLA ACCESS to Programs in Molecular, Cellular, and Integrative Life Sciences, 172 Boyer Hall, UCLA, Box 951570, Los Angeles, CA 90095-1570, (310) 206-6051. See <http://www.uclaaccess.ucla.edu>.

First-Year Course Requirements

During their first nine months in residence, students rotate for one term each through three laboratories selected from the UCLA ACCESS faculty list. They enroll in a 500-level course for 6 units of credit for each rotation.

In the Fall and Winter Quarters, students take four consecutive five-week courses in molecular and cell biology. These courses involve active student participation in small-group, discussion-based courses focused on primary research articles.

Additionally, students are required to take 6 units of elective courses from a list that includes offerings from participating Ph.D. programs. Electives are normally taken in the Spring Quarter. A course in ethics and accountability in biomedical research is also required in the Spring Quarter.

All departments participating in UCLA ACCESS consider teaching experience to be an integral part of the graduate program. Students are required to complete two terms of teaching beginning in their second year. They are also required to complete a course on approaches and methods for successful teaching.

Transfer to the Degree-Granting Program

Students are admitted to UCLA graduate standing through UCLA ACCESS on a provisional basis for up to four terms. At the end of Spring Quarter, academic progress is evaluated by the steering committee. Students who receive a satisfactory evaluation select a faculty mentor as their doctoral committee chair. With concurrence of the mentor and the degree-granting program, students then transfer from UCLA ACCESS to that program for the remainder of their Ph.D. studies.

Students who wish to carry out their research in the laboratory of an ACCESS faculty member in the Neurobiology department must submit an application to transfer into the Neuroscience interdepartmental program.

In the event students are unable to identify a suitable mentor and program by the end of their first year, one additional laboratory rotation approved by the steering

committee is available during the Summer Quarter. Students who are unable to arrange for a laboratory after four rotations are recommended for release from their provisional graduate standing.

SPECIAL ADMISSION POLICIES

NO DEGREE OBJECTIVE

UCLA has no special limited or unclassified categories of graduate admission. Under some circumstances, however, applicants may be admitted for coursework without a degree objective. For example, teachers with a master's degree who wish some refresher study, or international students on a year's stay in the U.S., may wish to apply in this manner. Requirements for admission are the same as those for degree programs, and the academic program must agree to accept the student for the no degree objective (NDO) status. All admission to NDO status must be specially approved by the dean of the Graduate Division, as must any University financial assistance for students on NDO status.

DUPLICATION OF DEGREES

The University of California, in general, discourages the duplication of advanced degrees. At the same time, it recognizes that a professional degree does not duplicate an academic one, and that pressing needs may exist for degrees in different areas (see Concurrent and Articulated Degree Programs in the front of this catalog). Students who apply for a second academic degree at the same level or lower than the one they already hold are required to show compelling cause to the department. The Graduate Division is particularly concerned that a careful review and special justification be made by the graduate program in all cases where an applicant or continuing student is recommended for admission to a second doctoral program. This concern also extends to a recommendation for student support for pursuit of a second doctoral degree. All degree requirements and University regulations apply just as they do for a first degree. Courses and other degree requirements already applied to the earlier degree may not be applied to the second.

SUMMER SESSIONS COURSES

Enrollment in Summer Sessions courses does not constitute admission to graduate standing, nor does it substitute for the required continuous registration in Fall, Winter, and Spring Quarters. Students who wish to apply Summer Sessions courses to their subsequent graduate program should consult in advance with their departmental adviser. This is also true if they have been readmitted to graduate standing and wish to resume graduate study in Summer Sessions. Information and applications are available from Summer Sessions, 1147 Murphy Hall.

If students take Summer Sessions courses following the award of their bachelor's degree, the grades do not appear on the undergraduate transcript (they are included on a separate transcript). After students are accepted by the Graduate Division, Summer Sessions grades are included on the graduate transcript and computed in the grade-point average.

READMISSION

Students who have registered at any time as a graduate student at UCLA and are returning after an absence (except a formal leave of absence) must file an Application for Graduate Admission.

See the Academic Policies section of this catalog for readmission procedures.

REGISTRATION

Registrar's Office
1113 Murphy Hall
(310) 825-1091

<http://www.registrar.ucla.edu>

Registration consists of paying fees and enrolling in classes.

1. Registration fees and other University charges are due the 20th of each month. BruinBill accounts can be viewed through URSA.
2. Enrollment in classes is completed via URSA at <http://www.ursa.ucla.edu>.

Students must complete both processes by the established deadlines to be officially registered and enrolled for the term.

Graduate students must be either registered and enrolled or on an official leave of absence every term until their degrees are awarded. As an exception, certain graduate students may be eligible to pay the filing fee (see below). Failure to register or be on an official leave of absence for any term constitutes withdrawal from UCLA.

PAYING FEES

Details on fee payment, enrollment procedures, and deadlines are in the *Schedule of Classes* at <http://www.registrar.ucla.edu/schedule/>.

EBILL

BruinBill accounts are administered electronically (eBill) through URSA. Monthly financial activity is displayed for the current month as well as past account activity for the last 24 months. URSA also includes a link to the Student Financial Services website (<http://www.sfs.ucla.edu>) where students can find important communications from the University regarding registration and University policies. Students can pay their BruinBill account electronically using Visa, MasterCard, PULSE, NYCE, STAR, Discover, or American Express. Students can also print a remittance document from the eBill webpage and mail payments with a check or money order. UCLA converts checks into electronic payments.

ANNUAL GRADUATE FEES

Although the exact cost of attending UCLA varies by program, there are some fees that all UCLA students must pay. UCLA does not charge on a per-unit basis. Each entering and readmitted student is required to



submit a Statement of Legal Residence to Graduate Admissions with the Statement of Intent to Register. Legal residents of California are not required to pay tuition. Students classified as nonresidents must pay annual tuition in addition to registration fees. For a definition of residence and nonresidence, see the Appendix.

Estimated Annual Fees for 2010-11	
Fees are mandatory and subject to change without notice. See http://www.registrar.ucla.edu/fees/ for updates.	
Student Services Fee	\$ 900.00
Educational fee	9,402.00
Graduate Students Association fee	39.00
Graduate Writing Center fee	12.00
Ackerman Student Union fee	55.50
Ackerman/Kerckhoff Seismic fee	113.00
Wooden Recreation Center fee	45.00
Student Programs, Activities, and Resources Center fee	93.00
Student Health Insurance Plan (GSHIP)	1,921.08
Total for California residents	\$12,580.58
Nonresident Educational fee	9,810.00
Nonresident Tuition	14,694.00
Total for nonresidents	\$27,682.58

Fees are subject to change without notice by The Regents. See <http://www.registrar.ucla.edu/fees/> for updates.

Students in the Schools of Arts and Architecture, Dentistry, Law, Management M.B.A. program, Medicine, Nursing, Public Affairs, Public Health, and Theater, Film, and Television should refer to the *Schedule of Classes* for explanation of additional fees.

MISCELLANEOUS FEES

Miscellaneous fees include charges for late registration fees payment. Late fees also apply if students file their Study List late or do not pay off BruinBill balances on time. Fees are charged if any check is returned by a bank for any reason. Charges are assessed for most petitions and other special requests. There is also a fee for advancement to doctoral candidacy. A full list of miscellaneous fees is at <http://www.registrar.ucla.edu/fees/miscfee.htm>.

STUDENT HEALTH INSURANCE PLAN

All UCLA graduate students are automatically assessed for and enrolled in the Graduate Student Health Insurance Plan (GSHIP) as a condition of registration at UCLA. Continued enrollment in a qualified medical/health insurance plan must be maintained during all registered terms.

The GSHIP fee is billed each term along with other UCLA fees. GSHIP fulfills all of the requirements mandated for a qualified medical/health insurance

plan as defined by the University. The Ashe Student Health and Wellness Center is the primary healthcare provider for GSHIP and is where all nonemergency medical care must be initiated for GSHIP claim payment consideration. See <http://www.studenthealth.ucla.edu>.

Waiving GSHIP

Students may waive GSHIP if they (1) maintain active enrollment in a qualified medical/health insurance plan that meets all established requirements, (2) apply for a GSHIP waiver within established deadlines, and (3) correctly complete the online GSHIP waiver form.

Students must apply for a GSHIP waiver online. See the Ashe Center website for details, including a definition of a qualified private medical/health insurance plan. Click the SHIP Insurance Info tab on <http://www.studenthealth.ucla.edu> and choose "Waive Student Health Insurance Plan (SHIP)" from the list of topics.

Deadlines for Waiving GSHIP

Third-party individuals may not waive GSHIP for a student. Waivers must be submitted by the stated deadline whether or not fees have been paid by that date. If the 20th falls on a weekend or holiday, the due date is the last business day prior to the 20th. Deadlines are strictly enforced. There are no refunds after the deadline.

The schedule for waiving GSHIP is as follows:

School of Law Students

Fall Semester	August 1-20
Spring Semester	December 1-20

School of Medicine Students

Fall Semester	
Fourth year	June 1-20
All other years	July 1-20
Spring Semester	December 1-20

All Other Students

Fall Quarter	September 1-20
Winter Quarter	December 1-20
Spring Quarter	March 1-20

The above information serves as official notice of the UCLA mandatory medical/health insurance requirement. All students are responsible for providing complete and accurate information that must be submitted by the stated deadlines.

FEE REFUNDS

Students who formally withdraw from the University or take an approved leave of absence may receive partial refunds of fees. For more information, see Withdrawal in the Academic Policies section of this catalog or consult the *Schedule of Classes* for policy details and specific refund deadlines for each term.

FEE DEFERRALS

Academic apprentice personnel are eligible to receive a fee deferral for registration fees assessed during the term in which they serve as an academic apprentice. Students are responsible for paying fees by the deferred payment deadline, which is two months after the standard term due date. Whether students attend UCLA,

take a leave of absence, or withdraw from the University, they are responsible for the fees, but may be eligible to receive a partial fee refund, according to the refund schedule in the *Schedule of Classes*. Fees not paid by the deadline are subject to the late fee charge.

REDUCED NONRESIDENT TUITION

The annual nonresident tuition fee for graduate doctoral students who have advanced to candidacy is reduced by 100 percent, effective the term after the student is advanced. Doctoral students may receive this reduced nonresident tuition rate for a maximum of three years. After three years, the full nonresident rate is assessed.

FILING FEE

Graduate students may be eligible to pay the filing fee (half the quarterly Student Services Fee) in lieu of full registration fees for the term in which they expect to complete final degree requirements and receive their degree. Doctoral students are not eligible to pay the filing fee unless registered the immediately preceding term.

Students who pay the filing fee are not eligible for University services beyond a maximum of 12 hours of faculty and staff time required to complete degree requirements and are not considered in the same status as registered students.

IN ABSENTIA REGISTRATION

Graduate students taking research or coursework leaves of absence outside California may be eligible for in absentia registration and reduction of the Educational and Student Services Fees to 15 percent of the full amounts. See the Academic Policies section of this catalog for more information.

ANNUAL BUDGET ESTIMATES

Students admitted to the D.D.S., D.Env., Dr.P.H., J.D., M.Arch., M.B.A., M.F.A. in Film and Television, M.F.A. in Theater, M.D., M.P.H., M.P.P., M.S.N., M.S.W., and M.U.R.P. degree programs must add a professional school fee, which varies by school.

Budgets for the Schools of Medicine, Dentistry, and Nursing are higher due to specialized supplies; figures are available from the health professions counselor. Budgets are designed to serve as a guide and are subject to change without notice.

All fees are subject to change without notice by The Regents. See the *Schedule of Classes* fee charts for updates at <http://www.registrar.ucla.edu/fees/>.

ENROLLING IN CLASSES

The *Schedule of Classes* (<http://www.registrar.ucla.edu/schedule/>) contains listings of class times, meeting rooms, instructors, and all information necessary for enrolling in classes. Use the *Schedule* and academic counseling to assemble a program of courses.

URSA ENROLLMENT

Students enroll in classes through University Records System Access (URSA), which is accessed at <http://www.ursa.ucla.edu>. The site walks students through the enrollment procedure.

Students are assigned specific times—called appointments—when they are allowed to enroll. Use URSA to determine enrollment appointments.

Also use URSA for other enrollment-related tasks, such as adding, dropping, or exchanging classes, signing onto the wait list for a class and checking waitlist status, or changing the grading basis for a class. For more information, see URSA in the Enrollment section of the *Schedule of Classes* at <http://www.registrar.ucla.edu/schedule/>.

IN-PERSON ENROLLMENT

For classes that require written approval or specialized processing, students may enroll in person at 1113 Murphy Hall, Monday through Friday from 9 a.m. to 4 p.m.

STUDY LIST

A Study List is the record of courses a student is enrolled in for the term. At 11:59 p.m. on Friday of the second week of instruction the Study List of enrolled courses becomes official, and all wait lists are eliminated. Students should verify their Study List through URSA after each enrollment transaction.

Students are responsible for all courses and the grading basis as listed on URSA and cannot receive credit for courses not listed.

After Friday of the second week, most changes to the Official Study List can be made with a fee via URSA. Some changes require an Enrollment Petition along with approval signatures.

See Enrollment in the *Schedule of Classes* for deadlines and complete instructions.

Errors or omissions should be corrected before the College or school deadlines for changes by petition. Unapproved withdrawal from or neglect of a course entered on the Study List results in a failing grade.



FULL-TIME GRADUATE PROGRAM

Three courses (or 12 units) per term are considered the normal enrollment for graduate students and are required for students not in doctoral candidacy to be counted for full-time standing in the University's official enrollment records. Therefore, students are directed by their departments to enroll full time whenever possible.

Throughout their appointments, teaching assistants (TAs) and graduate student researchers (GSRs) are required to be registered and enrolled in at least 12 quarter units. TAs or GSRs terminate their appointments if they take a leave of absence or withdraw. Course 375 for TAs and independent studies at the 500 level for GSRs may be counted toward the 12-unit load.

Graduate students holding fellowships must be enrolled in at least 12 units, both before and after advancement to candidacy. The 12-unit minimum required per term may include, among others, the 500 series (individual study or research).

Veterans are required to make normal progress toward the degree as stated by the major department. Information on Department of Veterans Affairs regulations is available from the Veterans Affairs coordinator, 1113 Murphy Hall.

Continuous Registration Policy

Graduate students must be either registered and enrolled or on an official leave of absence every term until their degrees are awarded. As an exception, certain graduate students may be eligible to pay the filing fee (see above). Failure to register or be on an official leave of absence for any term (Fall, Winter, or Spring Quarter) constitutes withdrawal from UCLA.

REGISTRATION IN THE FINAL TERM

If students are completing courses, using faculty time, library facilities, laboratories, or other University resources, or receiving University funds, they are required to register in the final term in which they expect to receive their degree.

When the award of a degree is expected at the end of a given term, but special circumstances (not involving preparation of the manuscript) over which a student has no control prevent the completion of all requirements before the first day of instruction in the next term, a student may petition for a waiver of registration for that term. Such petitions must be accompanied by a letter from the graduate adviser or department chair elaborating the exceptional circumstances.

Students who were registered for the preceding term and who completed all requirements for a degree in the interval between terms (before the first day of instruction) are not required to register to receive a degree at the end of the following term.

HEALTH ASSESSMENT AND EVALUATION

New students enrolling in the School of Dentistry, Medicine, or Nursing or the Department of Social Welfare must complete and return to the Arthur Ashe Student Health and Wellness Center the Health Evaluation forms. Visit the Ashe Center website at <http://www.studenthealth.ucla.edu> to obtain professional school health clearances and monitor immunization compliance. To schedule a clearance appointment, call (310) 825-4073, option 1, or visit the Ashe Center website. For specific questions related to requirements, contact the individual department.

FINANCIAL SUPPORT

Graduate Student
Support
1228 Murphy Hall
(310) 825-1025

Graduate Outreach,
Diversity, and Fellowships
1252 Murphy Hall
(310) 825-3521

<http://www.gdnet.ucla.edu>

As a major center for graduate study, UCLA offers its qualified graduate students substantial support through several types of financial assistance.

Information on available funding for entering (and reentering) students is included in the online Application for Graduate Admission. Continuing graduate students should complete the online Fellowship Application for Continuing Graduate Students. Completed fellowship applications must be returned to the home department by the published deadlines. Some departments have earlier deadlines; consult the Graduate Division website at <http://www.gdnet.ucla.edu> for details.

Financial Support for Entering Graduate Students and *Graduate Student Financial Support for Continuing Students* describe the full range of financial assistance available. They are revised annually and made available at the Graduate Division's website. Students should contact their department for more detailed information.

FELLOWSHIPS

The University administers several awards on the basis of scholarly achievement. Most awards are available in open competition, though some are restricted to new students or to specific departments. Some fellowship and scholarship awards are made from University funds; others are made from endowment funds held in trust by the University and given by interested friends and alumni. Still others come from annual donations by educational foundations, industry, government, and individual benefactors.

Most fellowship, traineeship, and grant awards are for one academic year (three terms). Fellowships and grants provide stipends in varying amounts for qualified students. Nonresident tuition fellowships cover the tuition, for periods of one to three terms, of selected graduate students who are not California residents.

ASSISTANTSHIPS

Academic apprenticeships train qualified students for careers in teaching and research, and compensate them for their services. Teaching assistantships provide experience in teaching undergraduates, with faculty supervision. (Teaching assistants, associates, and fellows are eligible to receive partial payment at the beginning of the term in the form of an interest-free advance loan check. Interested students should apply to their departments.) Graduate student researcher appointments give students experience working on faculty-supervised research projects.

AWARDS BASED ON FINANCIAL NEED

Because the cost of a graduate education may present a financial hardship, students who require assistance in meeting educational costs are encouraged to apply for aid based on their financial need. Need is defined as the difference between allowable school-related expenses and financial resources. Financial aid applicants must file the Free Application for Federal Student Aid (FAFSA). The priority filing deadline is March 2.

Students who need financial aid for Summer Sessions must submit a Summer Aid Application in addition to FAFSA. Summer applications are available at <http://www.fao.ucla.edu> beginning April 1 and should be filed by April 30 for on-time consideration.

Financial aid is also available to UCLA students enrolled in Summer Travel, Summer Institutes, or cross-campus Summer Sessions. See <http://www.fao.ucla.edu> for applications and deadline information.

Financial aid awards include work-study and low-interest loans. Students are usually awarded a financial aid package that is a combination of these forms of assistance. Further information is available from the Financial Aid Office, A129J Murphy Hall or at <http://www.fao.ucla.edu>.

DEGREE REQUIREMENTS

The following information is for prospective applicants and those outside the University who are interested in the basic structure of UCLA graduate degree requirements. It is not meant to be comprehensive or to serve as a primary resource for continuing students. Official, specific degree requirements, including language requirements, are detailed in *Program Requirements for UCLA Graduate Degrees* at <http://www.gdnet.ucla.edu>. At the same website, *Standards and Procedures for Graduate Study at UCLA* provides detailed information and sets forth general policies, many of which emanate from the Academic Senate and its Graduate Council, regarding completion of degree requirements, master's and doctoral committees, examinations, and foreign language requirements. General regulations concerning graduate courses, standards of scholarship, disqualification, appeal, leave of absence, normal progress toward degree, withdrawal, and a number of other matters also are included.

MASTER'S AND DOCTORAL STUDY

Graduate students earn a master's or doctoral degree by distinguished achievement in advanced study and research. In addition to coursework, there are various means of evaluating achievement in study, including qualifying and comprehensive examinations and various kinds of laboratory and fieldwork. Achievement in research is primarily assessed through evaluation of the master's thesis or doctoral dissertation. In addition to advanced study and research, professional master's and doctoral programs also may include professional training. This training may take the form of fieldwork,

internships, or projects, and may lead to professional licensure.

UNIVERSITY MINIMUM STANDARDS

The requirements described here for master's and doctoral degrees are minimum standards set by the University. Individual schools or departments may set higher standards and may require additional courses and examinations for their master's degree. Each department also sets additional requirements for doctoral degrees according to the demands of the field of study. See *Program Requirements for UCLA Graduate Degrees* at <http://www.gdnet.ucla.edu> and the departmental graduate adviser for details. Policies and regulations are outlined in *Standards and Procedures for Graduate Study at UCLA*, which is available from Graduate Admissions/Student and Academic Affairs, 1255 Murphy Hall or at <http://www.gdnet.ucla.edu>.

ACADEMIC RESIDENCE

For the master's degree, the minimum residence requirement consists of three academic terms of registration in graduate standing at the University of California, including at least two terms at UCLA.

For the doctoral degree, the minimum residence requirement is two years (six terms) of registration in graduate standing at the University of California, including one year (usually the second) in continuous residence at UCLA. If students earned a master's degree at UCLA, one year of this requirement will have been met. In most cases a longer period of residence is necessary, and from three to five years is generally considered optimal.

Academic residency for both degrees is established by successfully completing a minimum of one graduate or upper division course (4 units) during a term.

Students may earn one term of residence for summer study in either of these ways: (1) enroll in two six-week Summer Sessions taking at least 2 units of upper division and/or graduate work in each session OR (2) enroll in one eight-week session for at least 4 units of credit. Residence earned through Summer Sessions enrollment is limited to one third of the degree requirements.

To maintain satisfactory progress toward the degree, UCLA requires at least a B average in all courses taken in graduate standing at the University and in all courses applied toward a graduate degree, including those taken at another UC campus.

FOREIGN LANGUAGE REQUIREMENTS

Foreign language requirements are determined by individual departments and programs. If their program has a language requirement, students should fulfill it either before they begin graduate study or as soon as possible thereafter. All foreign language requirements must be satisfied before advancement to candidacy.

Many departments require graduate degree candidates to demonstrate proficiency in one or more foreign languages, so that they can acquire broad knowledge in their field of study and keep abreast of foreign developments in the field. Students are urged to complete language requirements as early as possible in their graduate career. If the department requires two or

more foreign languages, students must complete at least one before the University Oral Qualifying Examination (unless, as is most common, the department requires that both be completed before the examination).

Some departments allow students to fulfill language requirements either by passing departmental examinations or by completing coursework in a foreign language. Certain departments may require additional languages, special competence, or other special procedures. In some departments, English satisfies the foreign language requirement if it is not the native language.

For further details on foreign language requirements, consult the departmental graduate adviser.

CHANGING MAJORS

Continuing graduate students may petition for a change of major after discussing plans with the new department. Forms are available from the departments and should be filed with Graduate Admissions/Student and Academic Affairs, 1255 Murphy Hall. Deadlines are generally the same as those for the graduate admissions procedure.

PROGRAM OF STUDY AND SCHOLARSHIP

MASTER'S DEGREE

At least nine graduate and upper division courses (or any number of fractional courses totaling 36 units) must be completed in graduate standing; at least five (20 units) of the nine must be graduate-level courses. These unit requirements represent the University minimum standard. Many master's degree programs have higher unit requirements.

UCLA offers master's degrees under two plans: Plan I, the Master's Thesis, and Plan II, the Master's Comprehensive Examination. Some departments offer both plans, and students must consult with their department to determine the plan for meeting their degree requirements. University minimum requirements are the same under either plan.

Plan I: Master's Thesis

Every master's degree thesis plan requires the completion of an approved thesis that demonstrates the student's ability to perform original, independent research.

Plan II: Master's Comprehensive Examination

Following advancement to candidacy, students under Plan II must pass a comprehensive examination. Information concerning this examination and its format (which may be a recital, exhibition, project portfolio, etc.) is available in the departments.

DOCTORAL DEGREE

Doctoral programs are individualized and permit a high degree of specialization. The University does not specify course requirements for doctoral programs. Individual programs set their own requirements, which may include specific courses, and these must be completed before students take the University Oral Qualifying Examination. Students determine their course of study in consultation with a graduate adviser until the doctoral committee is appointed.

Doctoral Examinations before Advancement to Candidacy

Prior to advancement to candidacy, doctoral candidates fulfill the coursework, teaching, and/or examinations required by the major department or group. They are supervised during this period by a departmental adviser and/or departmental guidance committee. This committee administers a departmental written and, in some cases, oral examination (not to be confused with the University Oral Qualifying Examination) after students complete the recommended or required work. All students are required to successfully complete a written qualifying examination and the University Oral Qualifying Examination before advancement to doctoral candidacy. Once all departmental and foreign language requirements are met, the department chair consults with the student and then nominates a doctoral committee.

University Oral Qualifying Examination

The doctoral committee, consisting of at least four faculty members nominated by the department, is appointed by the dean of the Graduate Division (consult *Standards and Procedures for Graduate Study at UCLA* for details on committee membership). To determine qualifications for advancement to candidacy, the committee administers the University Oral Qualifying Examination and, at its option, a separate written examination.

Doctoral Dissertation

Every doctoral degree program requires the completion of an approved dissertation that demonstrates the student's ability to perform original, independent research and constitutes a distinct contribution to knowledge in the principal field of study.



Academic Policies

Students at UCLA are responsible for understanding the policies and regulations established by the Academic Senate. Should any variations exist between explanations in this catalog and regulations in the *Manual of the Academic Senate*, the manual prevails in all cases.

ACADEMIC CREDIT

Academic work at UCLA is measured by units of credit, which are used to evaluate the amount of time a student has devoted to a particular subject and to determine a student's class level.

UNITS OF CREDIT

Most University courses are assigned a unit value. One unit represents three hours of work per week per term by the student, including both class attendance and preparation.

CLASS LEVELS

Undergraduate class levels are determined by the number of units completed as follows:

Freshman (UFR)	0-44.9 units
Sophomore (USO)	45-89.9 units
Junior (UJR)	90-134.9 units
Senior (USR)	135 or more units

Graduate class levels are based on the degree objective and whether or not students are advanced to candidacy for a doctorate.

REPETITION OF COURSES

Certain courses, as noted in their course descriptions, may be repeated for credit. Other courses taken at the University (except UCLA Extension) may be repeated only according to the following guidelines:

1. To improve the grade-point average, students may repeat only those courses in which they receive a grade of C- or lower; NP or U grades may be repeated to gain unit credit. Courses in which a letter grade is received may not be repeated on a P/NP or S/U basis. Courses originally taken on a P/NP or S/U basis may be repeated on the same basis or for a letter grade.
2. Repetition of a course more than once requires the approval of the College or school or the dean of the Graduate Division, and is granted only under extraordinary circumstances.
3. Degree credit for a course is given only once, but the grade assigned each time the course is taken is permanently recorded on the transcript.
4. For undergraduates who repeat a total of 16 units or less, only the most recently earned letter grades

and grade points are computed in the GPA. After repeating 16 units, however, the GPA is based on all letter grades assigned and total units attempted.

5. For graduate students, all courses in which a letter grade is given, including repeated courses, are used in computing the GPA.

CREDIT FOR UPPER DIVISION TUTORIALS

Credit for upper division tutorial courses numbered 195 through 199 in a single term is limited to a maximum of 8 units. Subject to regulations governing Passed/Not Passed grades, students may take these courses on a Passed/Not Passed or a letter-grade basis, but the total number of units allowed in upper division tutorial courses for a letter grade is 32.

To enroll in an upper division tutorial course, students must have advanced junior standing and at least a 3.0 grade-point average in the major field, or must have senior standing. Students who have an outstanding Incomplete grade in an upper division tutorial course may not enroll in another upper division tutorial course until the grade of Incomplete has been removed. On the advice of the instructor and chair, the dean of the College or school may authorize exceptions to the limitations listed. Departments may impose additional limitations on upper division tutorial courses.

CREDIT BY EXAMINATION

Students with high scholastic standing may earn credit for regular UCLA courses by taking examinations rather than enrolling in the courses. This is accomplished by establishing, with a UCLA faculty member, an individual plan of study that may include oral and written work in addition to other requirements. To be eligible, undergraduate students must have completed a minimum of 12 units at UCLA. Graduate students must be registered at the time of the examination and are limited to a maximum of three courses taken in this manner.



The results of these courses are entered on the record in the same way as regular courses, and grade points are assigned. Graduate credit earned by examination may be applied to minimum course requirements for master's degrees but cannot apply to academic residence requirements for master's or doctoral degrees.

Students need approval from the instructor, the department, and the College or school or the dean of the Graduate Division, from whom petitions for credit by examination (with fee) are available.

GRADES

The work of all students at UCLA is reported in terms of grades. Instructors are required to assign a final grade for each student registered in a course.

UNDERGRADUATE GRADES

The following grades are used to report the quality of undergraduate student work at UCLA:

A+	Extraordinary
A	Superior
B	Good
C	Fair
D	Poor
F	Fail
P	Passed (achievement at grade C level or better)
NP	Not Passed
I	Incomplete
IP	In Progress
DR	Deferred Report

Grades A, B, C, and D may be modified by a plus (+) or minus (–) suffix. Grades A, B, C, and P denote satisfactory progress toward the degree, but a D grade must be offset by higher grades in the same term for students to remain in good academic standing. An F grade yields no unit or course credit.

GRADUATE GRADES

The following grades are used to report the quality of graduate student work at UCLA:

A	Superior Achievement
B	Satisfactorily demonstrated potentiality for professional achievement in field of study
C	Passed the course but did not do work indicative of potentiality for professional achievement in field of study
F	Fail
S	Satisfactory (achievement at grade B level or better)
U	Unsatisfactory
I	Incomplete
IP	In Progress
DR	Deferred Report

The grades A, B, and C may be modified by a plus or minus suffix. The grades A, B, and S denote satisfactory progress toward the degree, but a C grade must be offset by higher grades in the same term for students to remain in good academic standing. Courses in which a C grade is received, however, may be applied toward graduate degrees unless otherwise prohibited by the program requirements.

The Schools of Dentistry, Medicine, and Law use their own grading codes. Students who are interested in programs in any of these schools should consult the appropriate school announcement.

GRADE POINTS

Grade points per unit are assigned by the Registrar as follows:

A+	4.0	C–	1.7
A	4.0	D+	1.3
A–	3.7	D	1.0
B+	3.3	D–	0.7
B	3.0	F	0.0
B–	2.7	NP	0.0
C+	2.3	U	0.0
C	2.0		

As indicated, a plus (+) or minus (–) suffix added to a grade raises or lowers the grade-point value, except in the case of A+, which carries the same number of grade points as the A grade. Courses in which students receive a P or S grade may count toward satisfaction of degree requirements, but these grades, as well as DR, I, IP, and NR, are disregarded in determining the grade-point average. (If an I grade is later removed and a letter grade assigned, units and grade points are included in subsequent GPAs.) NR indicates that no grade was received from the instructor.

GRADE-POINT AVERAGE

The grade-point average is determined by dividing the number of grade points earned by the number of units attempted. The total grade points earned for a course equals the number of grade points assigned times the number of course units. For example, if a student takes three four-unit courses and receives grades of A–, B–, and C+, then the GPA for the term equals the total grade points (34.8) divided by the total course units (12). The GPA is 2.9. For satisfactory standing, undergraduate students must maintain a C average (2.0 GPA) and graduate students a B average (3.0 GPA) in all courses taken at any campus of the University (except UCLA Extension).

Only grades earned in regular session or Summer Sessions at any UC campus and grades earned by Arts and Architecture and Letters and Science undergraduate students in UCLA Extension courses prefixed by XLC are computed in the UCLA grade-point average. Grades earned at another institution or in UCLA Extension courses other than those prefixed by XLC do not affect the GPA.

Other schools and agencies may calculate GPAs differently from the University when evaluating records for

admission to graduate and professional school programs. Students should contact them about their policies in this regard.

Grade	Grade Points	Course Units	Total Grade Points
A-	3.7	4	14.8
B-	2.7	4	10.8
C+	2.3	4	9.2
Total		12	34.8

PASSED/NOT PASSED GRADES

Undergraduate students in good standing who are enrolled in at least 12 units (14 in the Henry Samueli School of Engineering and Applied Science) may take certain courses on a Passed/Not Passed (P/NP) basis.

The grade P is assigned for a letter grade of C or better. Units earned this way count toward degree requirements but do not affect the GPA. Students receive neither units nor course credit for an NP grade.

Students may enroll in one course each term on a P/NP basis (two courses if they have not elected the P/NP option in the preceding term). Their department or school may require that they take some or all courses in their major for a letter grade. Certain other courses or programs may also be exempt from the P/NP option; consult the College or school for details.

Students may make program changes to or from P/NP grading through the sixth week of instruction via URSA.

Courses that are offered only on a P/NP basis are designated PN in the *Schedule of Classes*.

SATISFACTORY/UNSATISFACTORY GRADES

Graduate students in good standing (minimum 3.0 GPA) may enroll for Satisfactory/Unsatisfactory (S/U) grading in one graduate or upper division course outside the major field each term, in addition to any courses offered only on an S/U grading basis within the major. The grade S is assigned for a letter grade of B or better, but units earned in this manner are not counted in computing the GPA. Students receive neither units nor degree credit for a U grade. They may not elect the S/U option for Summer Sessions courses without an approved petition.

Courses taken on an S/U basis outside the major, and 500-series courses within the major, are applicable toward degree and/or academic residency requirements if so approved. Interdepartmental majors may not apply S/U courses to degree requirements, except for 500-series courses. Program changes to or from S/U grading may be made through the tenth week of instruction via URSA.

Courses that are offered only on an S/U basis are designated SU in the *Schedule of Classes*.

INCOMPLETE GRADES

Once an Incomplete (I) grade is assigned, it remains on the transcript along with the passing grade students may

later receive for the course. The instructor may assign the I grade when work is of passing quality but is incomplete for a good cause (such as illness or other serious problem). It is the student's responsibility to discuss with the instructor the possibility of receiving an I grade as opposed to a nonpassing grade.

If an I grade is assigned, students may receive unit credit and grade points by satisfactorily completing the coursework as specified by the instructor. Students should not reenroll in the course; if they do, it is recorded twice on the transcript. If the work is not completed by the end of the next full term in residence, the I grade lapses to an F, NP, or U as appropriate. The College or school may extend the deadline in unusual cases (not applicable to graduate students).

IN PROGRESS GRADES

For certain courses extending over more than one term, evaluation of student performance is deferred until the end of the final term of the course. Provisional grades of In Progress (IP) are assigned in the intervening term(s) and are replaced with the final grade when students complete the full sequence. The school or College faculty or the Graduate Division determines credit if they do not complete the full sequence and petition for partial credit.

DEFERRED REPORT GRADES

Students may receive a Deferred Report (DR) grade when the instructor believes their work to be complete but cannot assign a grade because of disciplinary proceedings or other problems. If students are given a DR grade, the Office of the Dean of Students assists them in resolving the problem. For graduate students, the dean of the Graduate Division sets a deadline by which the DR lapses to an F if the problem is not resolved and a grade assigned. The DR is changed to a grade, or perhaps to an Incomplete, when the instructor provides written confirmation that the situation is resolved. The DR grade is not included in determining the grade-point average.

CORRECTION OF GRADES

All grades except DR, I, and IP are final when filed by the instructor in the end-of-term course report. Thereafter, a grade change may be made only in case of a clerical or procedural error or other unusual circumstances. No grade may be revised by reexamination or, with the exception of the I and IP grades, by completing additional work. Students who are dissatisfied with a grade should review their work with the instructor and receive an explanation of the grade assigned. All grade changes are recorded on the transcript. See the Appendix for further details and procedures for appealing grades.



ABSENCE AND READMISSION

To be registered for a term, students must enroll in courses and pay fees according to deadlines specified in the *Schedule of Classes*. Students who do not register are subject to the following policies on absence and readmission.

CANCELLATION

Before the first day of classes, students may cancel registration by (1) mailing a written notice to Student Services, Attn: Cancellation Clerk, 1113 Murphy Hall, UCLA, Box 951429, Los Angeles, CA 90095-1429 or (2) faxing a written notice to (310) 206-4520. Refund is as follows: fees paid by new undergraduate students are refunded except for the nonrefundable acceptance of admission fee and service fee; fees paid by new M.B.A. and Dentistry students are refunded except for their respective nonrefundable acceptance of admission fee; for new graduate, continuing, and reentering students, a service fee is deducted from the amount of fees paid.

Graduate students who cancel their registration and do not apply for a formal leave of absence must compete for readmission to return to the University.

WITHDRAWAL

Withdrawing from the University means discontinuing attendance in all courses in which students are enrolled. Students who withdraw during a term need to file a Notice of Withdrawal, available from their academic dean's office (undergraduates) or departmental office (graduate students).

When students officially withdraw, a percentage of the Student Services Fee may be refunded depending on the date the withdrawal form is filed.

Claims for refund must be presented within the academic (fiscal) year to which the claim is applicable. Consult the *Schedule of Classes* for policy details and specific refund dates.

Students may withdraw only if they have not taken any final examinations or otherwise completed the work in any classes. For undergraduates, one withdrawal places no restriction on readmission or continuation if they started the term in good academic standing. If they withdraw after one or more previous withdrawals or while in academic difficulty, a restriction may be placed on their continuance in undergraduate standing. Before withdrawing, they are urged to consult faculty, departmental, or College advisers to consider the full implications of this action.

Undergraduates may also withdraw from a term retroactively, provided no final examinations have been taken and no coursework has been completed. No withdrawals are accepted once they have officially graduated from the University.

Students who register and subsequently discontinue coursework or stop payment on registration checks without an approved petition for withdrawal, leave of absence, or cancellation receive F, NP, or U grades, as appropriate, for all courses in which they are enrolled

for that term. A fine is assessed if any check for registration fees payment is returned by a bank for stopped payment, insufficient funds, or any other reason. No fees are refunded, and future registration privileges may be curtailed or revoked.

UNDERGRADUATE READMISSION

Students who complete a term (Fall, Winter, or Spring Quarter), and do not register the following term, may return to UCLA the subsequent term as a continuing student and be eligible to register and enroll in advance.

ONE-TERM ABSENCE

Students on a one-term absence who plan to attend another institution—including UCLA Extension—should discuss plans with their College or school counselor before enrolling elsewhere. On returning to UCLA, they must have an official transcript mailed from the institution directly to UCLA Undergraduate Admissions and Relations with Schools (UARS). Once students request a transcript, they must complete a Transfer Credit Evaluation Request form at UARS, 1147 Murphy Hall, to have coursework evaluated.

Readmission Deadlines

Fall Quarter	August 15
Winter Quarter	November 25
Spring Quarter	February 25

PLANNED ACADEMIC LEAVE (PAL) FOR INTERNATIONAL TRAVEL

Students who plan to participate in a study abroad program sponsored by an institution other than UC are required to take a planned academic leave of absence (PAL) from UCLA. After they are accepted into a program, students must register their program with the UCLA International Education Office (IEO), B300 Murphy Hall. Registering the program also generates the student application for the leave of absence.

Requirements for programs and registration can be found on the IEO website at <http://www.ieo.ucla.edu/nonucprograms/>.

Students returning from an approved leave of absence for participation in a registered non-UC study abroad program are not required to seek readmission, but must provide official transcripts for coursework evaluation.

REENTERING STUDENTS

To return to the University after an absence of more than one term, students—except for those on PAL for non-UC study abroad—must complete an undergraduate readmission application and file it with the Registrar's Office in accordance with published deadlines. A nonrefundable fee applies.

Students must submit official transcripts from all institutions (including UCLA Extension) and a completed Statement of Legal Residence with readmission appli-

cations. Coursework is evaluated when official transcripts are received. The paper records of nonregistered students, including transcripts submitted for transfer credit, are retained by the Registrar's Office for five academic years after the last registered term.

Students who have not registered for five years must resubmit official transcripts of all work completed outside UCLA. Readmission is generally approved if students were in good academic standing (2.0 grade-point average) when they left the University, if coursework completed elsewhere in the interim is satisfactory, and if readmission applications are filed on time. The College or school may have other regulations. Contact the readmission clerk for more information at (310) 825-1091, option 6.

GRADUATE READMISSION

For details on the policies below, consult *Standards and Procedures for Graduate Study at UCLA* at <http://www.gdnet.ucla.edu/publications.asp>.

CONTINUOUS REGISTRATION POLICY

Graduate students must be either registered and enrolled or on an official leave of absence every term until their degrees are awarded. As an exception, certain graduate students may be eligible to pay the filing fee. Failure to register or be on an official leave of absence for any term (Fall, Winter, or Spring Quarter) constitutes withdrawal from UCLA.

GRADUATE LEAVE OF ABSENCE

Continuing graduate students in good standing (3.0 GPA or above) who have completed at least one term of UCLA graduate work may, with the support of their department and the approval of the Graduate Division, be eligible for leaves of absence. Graduate students are allowed a maximum of six quarters of official leave of absence.

Federal policy governing students on F-1 and J-1 visas restricts leaves of absence to certain conditions. Therefore, the Dashew Center for International Students and Scholars, in consultation with the Graduate Division, individually evaluates each international graduate student request for a leave of absence to determine that it meets federal (and University) eligibility criteria.

Research doctoral students who are new parents or who are confronted with extraordinary parenting demands should consult *Standards and Procedures for Graduate Study at UCLA* in regard to Graduate Council policy requiring program accommodations for them.

Students on approved leave of absence are not permitted to use faculty time or make use of University facilities for more than 12 hours since their last registration and are not eligible for apprentice personnel employment or other services normally available to registered students. There is no need to apply for readmission, since the approved leave is for readmission to a specific term. The Registrar's Office notifies students about registration information for the returning term.

The Request for Leave of Absence form is available at <http://www.gdnet.ucla.edu> in the forms section. See the *Schedule of Classes* calendar for the filing deadline.

In Absentia Registration

Academic and professional graduate students taking leaves of absence outside California for research or coursework related to their degree program may be eligible for in absentia registration. Students registered in absentia pay 15 percent of the Educational and Student Services Fees, but pay the full amounts of other mandatory fees such as health insurance and nonresident tuition (if applicable). In absentia registration and fee reductions may be used for a maximum of six quarters or four semesters for academic doctoral students, and up to three quarters or two semesters for master's and professional graduate students. For complete details and restrictions, see the FAQ at <http://www.gdnet.ucla.edu/gss/library/abspetitionfaq.pdf>. To register in absentia, complete a Petition for In Absentia Registration at <http://www.gdnet.ucla.edu/gss/library/abspetition.pdf>.

APPLICATION FOR READMISSION

Students who are granted a formal leave of absence do not have to apply for readmission if they resume their graduate work in accordance with the terms of their leaves. All other continuing graduate students who fail to register for any regular session, or who fail to complete a term through cancellation or withdrawal, must compete for readmission with new applicants.

Students who have registered at any time as a graduate student at UCLA and are returning after an absence (except a formal leave of absence) must file an Application for Graduate Admission which is available online at <http://www.gdnet.ucla.edu>. Payment of the nonrefundable application fee may be paid by credit card or by check or money order. Transcripts of all academic work completed since registration at UCLA as a graduate student must also be submitted.



TRANSCRIPTS AND RECORDS

The transcript reflects all undergraduate and graduate work completed in UCLA regular session and Summer Sessions. It lists chronologically the courses, units, grades, cumulative GPA, transfer credits, and total units.

Official UCLA transcripts are printed on security paper to safeguard against unauthorized duplication, alteration, and misrepresentation. The paper has a multicolor security background design and a border with the words "University of California, Los Angeles." Authentication details are located in the lower right-hand corner of the transcript, and the transcript legend is located on the reverse of the document. Transcripts are issued in blue envelopes marked "Official Transcripts Enclosed."

Two versions of official UCLA student records are available from the Registrar's Office, 1113 Murphy Hall. These are the academic transcript and the

verification transcript. Each is designed to meet specific needs.

ACADEMIC TRANSCRIPT

The academic transcript is a student's complete academic record, including a listing of courses taken, transfer credit, units, grades, grade-point average (GPA), earned UCLA degrees, and in-progress term information. In-progress information includes a list of the courses that a student enrolled in during the term the document was requested and other in-progress information such as a change in major or the removal of an I grade.

Grades for completed terms are processed immediately following the conclusion of final examinations. Complete academic transcripts are available approximately two weeks after the last day of the term. For graduating students, academic transcripts with the graduation date included are available approximately seven weeks after the end of the term. Students who require earlier proof of graduation should contact a degree auditor in 1113 Murphy Hall. A fee may be charged for this service.

The minimum period required for processing and issuing academic transcripts for both registered and former students is three working days.

VERIFICATION TRANSCRIPT

The verification transcript certifies registration (fee payment), enrollment status, and degrees. For auto insurance "good student" discount, insurance forms should be presented at 1113 Murphy Hall. The verification fee is required for this service. Verification transcripts confirm student status only after registration fees have been paid for the term. Verification of student workload is based on actual enrolled units and does not consider wait-listed units or list courses for a term.

Verification of degree can be issued after students' degrees have been posted to their student record approximately seven weeks after the term ends. Students who require verification before their degree is posted should contact their degree auditor in 1113 Murphy Hall.

The fee for a verification transcript is waived if requested for loan or student aid verifications (proof of request required). Most enrollment verifications for loans and creditors, however, are processed for the University by the National Student Clearinghouse. Approved by the U.S. Department of Education, the clearinghouse is a national organization that facilitates and expedites student enrollment verifications for creditors and other student service-related agencies. The clearinghouse abides by all provisions of the Family Educational Rights and Privacy Act (FERPA).

THIRD-PARTY VERIFICATIONS

UCLA has authorized National Student Clearinghouse to act as its agent for all third-party verifications of student enrollment and degrees. Degree verification for the most recent term is available approximately eight weeks after the term ends. The clearinghouse abides by all provisions of the Family Educational

Rights and Privacy Act (FERPA). See <http://www.studentclearinghouse.org>.

ORDERING TRANSCRIPTS

Continuing students must order academic and verification transcripts through URSA. Other students may order transcripts in person at 1113 Murphy Hall, or by sending a request to UCLA Registrar's Office, Attn: [Academic or Verification] Transcripts, 1105 Murphy Hall, Box 951429, Los Angeles, CA 90095-1429.

Requests should include the student's

1. Name under which he or she was registered at UCLA
2. Dates of attendance at UCLA
3. Date of birth
4. 9-digit student ID number, if available
5. Complete address and telephone number
6. Number of copies requested
7. Mailing instructions including all details and any special handling
8. Full signature

Transcript Order forms containing this information are available in the Murphy Hall northwest lobby or at <http://www.registrar.ucla.edu/forms/>.

For UCLA Extension courses, order transcripts from UCLA Extension, P.O. Box 24901, Department K, Los Angeles, CA 90024-0910.

Requests are not processed if students have outstanding financial, academic, or administrative obligations (holds) to the University. Transcripts of work completed elsewhere must be requested directly from the campus or institution concerned.

More information on ordering transcripts is available by calling (310) 825-1091 or by contacting transcripts@registrar.ucla.edu.

FEES AND PAYMENT

Current students' transcript fees are billed to their BruinBill account. Former students may be billed or may submit a check or money order payable to Regents-UC.

In some cases, special fees may apply. Forms that must be completed by the Registrar's Office or that require official signatures are charged a special handling fee. Expedited service—processing within 24 hours—is available for an additional fee, or transcripts can be faxed with payment of an additional fee. Transcripts that are faxed are generally not considered official, and confidentiality cannot be guaranteed.

Transcript requests are not processed for anyone with outstanding obligations to the University. For exact fees, see <http://www.registrar.ucla.edu/fees/>.

STUDENT RECORDS

The Registrar prepares, maintains, and permanently retains a record of each student's academic work. Student files of pertinent documents are maintained up to five years from the admit term. Students may view their documents at the Registrar's Office, 1113 Murphy Hall, (310) 825-1091. Advance notice of two to three days is required for viewing.

UNIVERSITY RECORDS SYSTEM ACCESS

Through University Records System Access (URSA), UCLA students acquire academic, financial, and personal information from their University academic records. Students may access the system for up to 10 years after their graduation or last term of attendance. See <http://www.ursa.ucla.edu>.

CHANGE OF NAME OR ADDRESS

Students who wish to change their name on official University records should fill out a UCLA Name Change or Correction form (available online at <http://www.registrar.ucla.edu/forms/> or in the Murphy Hall northwest lobby) and submit it with documentation supporting the name change to the Registrar's Office, 1113 Murphy Hall. All name changes are recorded on the transcript. If students change their address, they should update their address through URSA.

CLOSURE OF STUDENT RECORDS

Student records are closed to revisions in enrollment, grading, and academic actions on award of a degree. Students are responsible for requesting review of their record prior to award of their degree. See UCLA Procedure 220.1 Student Grievances Regarding Challenge to Content of Student Records Under the Family Educational Rights and Privacy Act, which may be found at http://www.adminvc.ucla.edu/appm/_entry_200.html.

Changes requested by an individual after award of a degree are considered by the College or school only under extraordinary circumstances. Supportive documentation is required. On action of the academic dean, a statement of the request for revision and a note of the change will be recorded only in the memoranda section of the transcript.

DEGREES

Students must satisfy (1) University requirements, (2) College or school requirements, and (3) department requirements as described in this catalog.

UNDERGRADUATE DEGREES

Undergraduate degree requirements are subject to the following degree policies.

STUDENT RESPONSIBILITY

It is the responsibility of students to keep informed of and to comply with the rules, regulations, and policies affecting their academic standing. Meeting academic deadlines, monitoring the Study List for accuracy, completing requisites, and fulfilling degree requirements are all part of their academic duties as students.

MINIMUM SCHOLARSHIP

The grades A through C and Passed denote satisfactory progress toward the bachelor's degree. The grades C– through D– yield unit credit but may not satisfy certain scholarship requirements. Even when they do, they must be offset by grades of C+ or better in other courses. Students must earn at least a C (2.0) average

in all courses taken at any University of California campus. Students who fail to maintain this level may be placed on academic probation or may become subject to dismissal. The College and each school may set additional scholarship requirements.

Academic Probation

Students are placed on probation if their overall or term grade-point average falls between 1.5 and 1.99. While they are on probation, they may not take any course on a Passed/Not Passed basis. Probation ends at the close of a regular term if students have attained a C (2.0) average for the term and a cumulative C average in all University work. Students who do not end probation within two terms are subject to dismissal.

Academic Dismissal

Students are subject to dismissal from the University under any of the following conditions:

1. If their grade-point average in any one term is less than 1.5 or
2. If they do not earn at least a C (2.0) average in any term when they are on probation or
3. If they do not end probation within two terms

If students are subject to dismissal, their transcripts carry that notation. They should make an appointment with their College or school counselor. Depending on the situation, they are given conditions for continuation or are dismissed from the University.

PROGRESS TOWARD THE DEGREE

UCLA is a full-time institution, and it is expected that students complete their undergraduate degree requirements promptly. Normal progress toward graduation in four years is defined as the completion of 45 units per year, or 15 units per term.

MINIMUM PROGRESS AND EXPECTED CUMULATIVE PROGRESS

Each school enforces minimum progress regulations. The College enforces expected cumulative progress regulations. Students may be subject to disqualification for failing to meet minimum progress and expected cumulative progress requirements. See the College and Schools section for specific minimum progress and expected cumulative progress and Study List regulations.

PETITIONS

A petition is a form submitted to explain an exception from any standard rule or regulation of the University. It is the only way to obtain formal approval from the department, the College or school, the Registrar, or office with authority over the particular request. Some petitions carry a fee.

Some of the uses of petitions are to change the College, school, or major; take more or fewer units than regulations permit; make changes to the Study List after URSA processing ends; or obtain credit by examination. In addition, students may petition for concurrent enrollment, double major, or waiver of scholarship requirements.

TRANSFER CREDIT

Every California community college has Transfer Course Agreements that specify which courses will receive transfer credit. These courses are displayed in ASSIST (<http://www.assist.org>), the statewide transfer information site. Students can get some knowledge of transfer credit from accredited institutions other than the University of California or California community college by comparing the descriptions of courses taken with those in the *UCLA General Catalog*.

Once students complete the courses, they must have the other institution send official, sealed transcripts to Undergraduate Admissions and Relations with Schools (UARS), 1147 Murphy Hall, Box 951436, Los Angeles, CA 90095-1436. Transfer students should discuss transfer credit with their College or school counselor and/or departmental adviser.

Community College

The maximum number of community college units allowed toward the bachelor's degree is 105 quarter units (70 semester units). The UCLA UARS does not grant transfer credit for community college courses beyond 105 quarter units, but students may still receive subject credit for this coursework to satisfy lower division requirements. Consult the College or school counselors for possible further limitations. To convert semester units into quarter units, multiply the semester units by 1.5—for example, 12 semester units \times 1.5 = 18 quarter units. To convert quarter units into semester units, multiply the quarter units by .666—for example, 12 quarter units \times .666 = 7.99 or 8 semester units.

Summer Sessions

Summer Sessions grades at any UC campus are computed in the UCLA grade-point average.

UCLA Extension

Students who wish to receive degree credit for work taken through UCLA Extension should take courses that correspond in number to the undergraduate courses offered in regular session. The designation XL or XLC before the number of the Extension course signifies that the course is equivalent to the regular session course bearing the same number. Grades earned by undergraduate students in the College of Letters and Science, the School of Arts and Architecture, and the Henry Samueli School of Engineering and Applied Science in courses prefixed by XLC are computed in the UCLA grade-point average. No degree credit is given for courses numbered X300 through X499. Concurrent enrollment in Extension and regular session is not permitted.

DEGREE CHECKS

Anytime prior to graduation students may request a review of degree progress. These official degree checks detail requirements remaining to complete the bachelor's degree. The degree check process is different for the College and each school.

College of Letters and Science

The Degree Progress Report (DPR) serves as the degree check. The DPR is an assessment of all degree requirements and the courses taken to fulfill them.

View and print DPRs through URSA or order one at a College counseling office (Academic Advancement Program, 1209 Campbell Hall; Honors Programs, A311 Murphy Hall; College Academic Counseling, A316 Murphy Hall).

Students should review questions about their DPR with departmental undergraduate advisers or College counselors, as appropriate.

School of the Arts and Architecture

Degree Progress Reports are available through URSA as well as on request from the Student Services Office, 2200 Broad Art Center. Students should consult an adviser in the Student Services Office when they have questions about degree requirements. Questions regarding major requirements should be referred to the departmental counselor.

Henry Samueli School of Engineering and Applied Science

Students following a catalog year prior to 2006-07 and starting their upper division major field coursework must submit a "satisfied" Academic Program Proposal to the Office of Academic and Student Affairs, 6426 Boelter Hall. The Academic Program Planner (APP) is an interactive self-advising system that informs these students if their academic programs meet the requirements for graduation. Students following the 2006-07 and later catalogs use a program called Degree Audit Reporting Systems (DARS). Students should obtain an official degree check at least one term prior to their graduation term. For details, see http://www.seasoasa.ucla.edu/degree_check.html.

School of Nursing

Students may initiate a request for an updated degree check by contacting the student services coordinator in the Student Affairs Office, 2-137 Factor Building.

School of Theater, Film, and Television

Students entering as freshmen receive a written degree check on achieving junior standing. Students entering as juniors receive a degree check on entry. Students may initiate or request an updated degree check by making an appointment with their departmental counselor in the Student Services Office, 103 East Melnitz Building.

GRADUATE DEGREES

For graduate degree requirements and procedures, see *Program Requirements for UCLA Graduate Degrees and Standards and Procedures for Graduate Study at UCLA* at <http://www.gdnet.ucla.edu>.

CERTIFICATE OF RESIDENT STUDY

International students who must leave the University and the country before completing a degree or certificate program may request a Certificate of Resident Study in addition to a formal transcript. The certificate cannot be awarded if the studies involved are covered by a diploma or other certificate. The chair of the major department recommends the award of the certificate through a petition to the College, school, or Graduate Division. To be eligible to receive the certifi-

cate, students must have completed a program of at least nine courses with a minimum GPA of 2.0 (2.5 for Graduate Division students) and have satisfactorily completed a research project over a period of nine months or more.

GRADUATION

The awarding of degrees is the culmination of several steps that begin when students identify the term they expect to complete degree requirements.

UNDERGRADUATE STUDENTS

Approximately eight out of every 10 UCLA freshmen eventually receive a baccalaureate degree, either from UCLA or from another campus or institution. One third of all UCLA baccalaureate recipients go on to graduate school.

DECLARATION OF CANDIDACY

To initiate the steps leading to the award of a bachelor's degree, students must identify the term they expect to complete degree requirements through URSA by the time they complete 160 units (172 units for engineering students) to avoid a late candidacy fee. The identified term must fall within the academic year (four quarters) subsequent to the term in which students reach or expect to reach the 160- or 172-unit mark. Once they complete 160/172 or more units, a fee is assessed each time students change the degree expected term.

Current-term or past-term candidates over the unit limit must file a UCLA Declaration of Candidacy form at 1113 Murphy Hall. The form is available online at <http://www.registrar.ucla.edu/forms/>.

Friday of the second week is the last day to declare candidacy for the current term (with fee depending on units completed). Declaration of candidacy after the second week may result in a degree award date for the following term and additional penalty fees.

Verify the degree expected term through URSA. For questions about degree candidacy status, Letters and Science students may inquire at 1113 Murphy Hall. Arts and Architecture, Theater, Film, and Television, Engineering, and Nursing students should see their school office. A photo ID is required. Declaring candidacy is not a guarantee of graduation.

IN ABSENTIA GRADUATION

Students who intend to complete degree requirements while nonregistered (those who take a course through UCLA Extension or at another institution, remove an Incomplete grade, and so on) must file a request to graduate in absentia with their degree auditor in 1113 Murphy Hall by the second-week candidacy deadline. Students graduating in absentia are assessed the undergraduate in absentia degree service fee in addition to the declaration of candidacy fee if they were also not registered in the term immediately prior to their degree expected term.

FINAL DEGREE AUDITS AND GRADUATION

Degree auditors in the Registrar's Office for Letters and Science students (2200 Broad Art Center for Arts and Architecture students, 6426 Boelter Hall for Engineering students, 2-137 Factor Building for Nursing students, and 103 East Melnitz Building for Theater, Film, and Television students) are responsible for verifying each candidate's eligibility for a bachelor's degree. Degree auditors have information pertaining to a student's graduation only if that student declared candidacy and completed 160 quarter units (172 units for engineering students).

During their graduating term, students should inform a degree auditor of grade changes, petitions for substitutions or exemptions, transfer credits, or similar changes that may effect their degree. Degree auditors notify students whose graduation eligibility cannot be verified of any requirements still outstanding and other problems in completing the degree.

Student records are closed to revisions in enrollment, grading, and academic actions on award of a degree. Students are responsible for requesting review of their record prior to award of their degree.

A Summary of Shortages for the Bachelor's Degree statement is mailed to each current-term candidate who does not satisfy degree requirements that term. Students who receive such notices should contact a degree auditor immediately. If students expect to satisfy degree requirements in a later term, they must change their degree expected term through URSA or at 1113 Murphy Hall. They may be assessed applicable fees.

Contact degree auditors only for questions about degree audits. Phone numbers are in the Registrar's Services Guide in the Student Services section of the *Schedule of Classes*. For graduation ceremony procedures, contact the College or schools.



DEGREE DATE

Degrees are awarded at the end of Fall, Winter, and Spring Quarters and at the end of Summer Session C. School of Law and School of Medicine degrees are awarded at the end of Fall and Spring semesters. Consult the UCLA quarter, summer sessions, and semester calendars for the degree award date, which is the final day of the term. See <http://www.registrar.ucla.edu/calendar/>.

COMMENCEMENT

The College and each school conduct ceremonies for their graduates. Ceremonies feature addresses and recognize candidates who have achieved high academic distinction and honors. Names of students who request that no public information be released do not appear in commencement ceremony programs. Students may change their privacy status on URSA.

Check with the College or school for eligibility requirements, programs, and time schedules. Further information, including the schedule of ceremonies,

maps and parking, and updates, is at <http://www.commencement.ucla.edu>.

DIPLOMAS

Diplomas for both undergraduate and graduate students are available approximately three to four months after the degree award date. Information about obtaining the diploma in person (no fee) or by mail (with fee) is sent to students approximately seven weeks after the end of their final term. To expedite receipt of the diploma, students should return the Diploma Mail Request form, available at <http://www.registrar.ucla.edu/forms/>. Obtain recorded diploma availability information at (310) 825-8883.

Change of Name

To be reflected on the diploma, name changes must be submitted to the Registrar's Office, 1113 Murphy Hall, by the last day of the degree expected term. Once the degree is awarded, only a court order will be accepted to make a name change. The replacement diploma fee applies.

Duplicate Diplomas

If the original diploma is destroyed, a duplicate may be ordered by contacting the Registrar's Office, Diploma Reorder, 1113 Murphy Hall, or by completing the Duplicate Diploma Application available at <http://www.registrar.ucla.edu/forms/>. There is a fee for the replacement diploma, and it bears a reissue date and the signatures of the current officials of the state and University.

GRADUATE STUDENTS

Candidates for both master's and doctoral degrees must be advanced to candidacy and complete all degree requirements, including the master's thesis or comprehensive examination, or doctoral dissertation, before the degree is conferred (see the *Schedule of Classes* calendar for filing deadlines). For graduate degree requirements and procedures, see *Program Requirements for UCLA Graduate Degrees and Standards and Procedures for Graduate Study at UCLA* at <http://www.gdnet.ucla.edu>.



College and Schools

The UCLA campus has one College and 11 professional schools. Each has its own degree requirements and is headed by a dean who has final academic authority. UCLA students enroll in the University and in the College or one of the schools described in this section.

COLLEGE OF LETTERS AND SCIENCE

Timothy A. Stowell, Dean of Humanities
Victoria L. Sork, Dean of Life Sciences
Joseph A. Rudnick, Dean of Physical Sciences
Alessandro Duranti, Dean of Social Sciences
Judith L. Smith, Dean/Vice Provost of Undergraduate Education

UCLA
2300 Murphy Hall
Box 951430
Los Angeles, CA 90095-1430

(310) 825-9009
<http://www.college.ucla.edu>

UCLA is one of the world's premier universities. At the core of the University's research programs, graduate training, and undergraduate instruction is the UCLA College of Letters and Science. With over 24,700 students and more than 900 faculty members, the College is the largest academic unit in the UC system. The College offers more than 130 majors leading to the Bachelor of Arts, Bachelor of Science, or Bachelor of Arts and Sciences (B.A.S.), as well as to master's and doctoral degrees.

For a complete list of College of Letters and Science degrees, see the table in the front of this catalog.

The undergraduate programs in the College stress a liberal arts education that brings together perspectives from many fields in a unified approach to learning. Students learn ways that issues are analyzed, questions are posed, and knowledge is organized. After sampling many general subjects, they concentrate on one field or subject and are required to pursue it rigorously and in depth, according to the standards of scholars in the field. When they reach the graduate level, they pose their own questions, analyze academic issues of their own making and, through their research, participate in the creation of knowledge.

ORGANIZATION OF THE COLLEGE

The College is organized in five divisions, each led by a dean. A description of each division follows.

HUMANITIES

The Humanities Division promotes, through scholarly inquiry and the transmission of ideas, sensitive, imaginative, and rigorous reflection on the human condition. Courses in literature help students understand the enduring power of texts both great and small—from cuneiform to manuscript to hypertext. Studies of nearly 100 foreign languages create a gateway to civilizations that span the globe and five millennia of human history. Philosophers provide training in the fundamental principles of logic and moral reasoning, and linguists—both theoretical and applied—illuminate the physiological, cognitive, and social aspects of human language. Musicologists and art historians explore with students the forms and media through which humans have sought to express themselves and to challenge and make sense of their worlds. Programs in the humanities teach students to interpret texts with an informed sensitivity, to evaluate ideas critically, to write clearly and effectively about them, and to be able to question and discuss them with their peers. See <http://www.college.ucla.edu/humanities.html>.

LIFE SCIENCES

Faculty members and students in the Life Sciences Division play an essential role in unlocking the basic mechanisms of life at the most fundamental level. The geography of Southern California is conducive to life sciences research, since the diverse region is a natural laboratory for environmental biologists, plant and animal ecologists, and evolutionary biologists. Scientists in microbiology and molecular, cell, and developmental biology study embryo formation, cell signaling, and genetics. Neurochemists, neurophysiologists, psychobiologists, and behavior biologists study the underlying mechanisms of the neural basis of behavior. Physiological scientists examine the structure of muscle, hormonal control of behavior, and environmental

Undergraduate programs in the College stress a liberal arts education that brings together perspectives from many fields in a unified approach to learning.



conditions, such as weightlessness, that affect bone and muscle structure and function. Cognitive psychologists are concerned with the nature of knowledge—how people learn, remember, associate, and think, and how computers relate to human thought processes. See <http://www.college.ucla.edu/lifesciences/>.

PHYSICAL SCIENCES

Departments in the Physical Sciences Division present the results of human efforts to understand the natural sciences and their physical aspects, including the properties and characteristics of matter and energy; the science of numbers and order; the origin and structure of the universe, solar system, and Earth; and climatic change and its environmental impact. The bases for the physical sciences are the fundamental laws and proof of mathematics, chemistry, and physics. Studies in the physical sciences are experimental, theoretical, observational, and computational. Faculty members and students are interested in such topics as the nature and evolution of the galaxies; ozone depletion; nuclear winter; greenhouse effect; molecular recognition, interactions, design, synthesis, and structure; evolution of life and the continents; computational mathematics and symbolic logic; superconducting materials; plasma fusion, space plasmas; and high-energy accelerator physics. See <http://www.physicalsciences.ucla.edu/about.asp>.

SOCIAL SCIENCES

Majors in the Social Sciences Division help students make sense of the rapidly changing world around them by giving them the tools and sensibilities to appreciate the complex interplay of individuals, environment, culture, and economy that makes up their social world. They study human and animal evolution, as well as the transformation of human societies from small groups to states. They explore and debate the meaning of cultural, ethnic, and racial identities in historical and contemporary settings. Some majors challenge students to analyze the role of labor, markets, and exchange, as well as the dynamics of political choices, participation, and institutions. Communication, from interpersonal conversation to mass media, and its impact on personal and political behavior are studied in different fields, while the impact of place and the natural environment are examined through geography. Underlying all of these topics is a drive to capture the elusive nature of human behaviors and relationships through direct observation and the questioning of prevailing theories. In addition, students learn exciting and diverse methods of social and environmental analysis, such as archaeology, linguistics, statistics, game theory, remote sensing and imagery, textual analysis, ethnography, geographic information systems, fieldwork, and ecology. See <http://www.sscnet.ucla.edu/college/>.

UNDERGRADUATE EDUCATION

The Undergraduate Education Division serves as the campuswide advocate for undergraduate education, promoting academic success for UCLA's diverse undergraduate population and ensuring options for all students to engage in a challenging array of educational opportunities, from foundational general education

courses to advanced research and honors projects. See <http://www.ugeducation.ucla.edu>.

Academic Advancement Program. The Academic Advancement Program (AAP) is a multiracial, multi-ethnic, and multicultural program that promotes academic excellence through academic counseling, learning sessions, and mentoring. Students are eligible for AAP if their academic profiles and personal backgrounds may impact their University experience and their retention and graduation from UCLA. See <http://www.aap.ucla.edu>.

Academics in the Commons. The Academics in the Commons (AITC) program provides students, through workshops and learning sessions, with an understanding of skills and techniques, an awareness of campus resources, and knowledge of self, so that personal and academic success at UCLA can be achieved. See <http://www.aitc.ucla.edu>.

Center for Community Learning. The Center for Community Learning (CCL) serves faculty members, undergraduate students, and community partners through academic courses and programs, including credit-bearing internships, service learning courses, community-based research, and service scholarships. It is home to the undergraduate minor in Civic Engagement. See <http://www.communitylearning.ucla.edu>.

Center for Educational Assessment. The Center for Educational Assessment provides information and analysis to support planning, program and policy development, and other decision making about undergraduate education at UCLA. See <http://www.ugeducation.ucla.edu/assessment/>.

College Academic Counseling. College Academic Counseling (CAC) provides College undergraduate students with counseling on academic regulations and procedures, course selection, preparation for graduate and professional programs, selection of appropriate majors, and the options and alternatives available to enhance a UCLA education. See <http://www.ugeducation.ucla.edu/counseling/>.

Honors Programs. Honors Programs offers academic programs and services designed to promote an outstanding honors education, including College Honors, Honors Collegium, Departmental Scholar Program, Individual Majors Program, Phi Beta Kappa, Honors Scholarships, Honors Research Stipends, and specialized counseling and support services for College honors students. See <http://www.honors.ucla.edu>.

Office of Instructional Development. The Office of Instructional Development (OID) supports undergraduate education by enhancing teaching and learning opportunities. Through grants, programs, and services, OID promotes the effective use of current and emerging instructional methodologies and technologies. See <http://www.oid.ucla.edu>.

Scholarship Resource Center. The Scholarship Resource Center (SRC) is designed to help students in the search for private scholarships, regardless of financial aid eligibility. See <http://www.ugeducation.ucla.edu/src/>.

Summer Orientation Program. Summer Orientation is the first introduction to UCLA for new students. During the three-day first-year student sessions and the one-day transfer student sessions, a unique set of

comprehensive and engaging programs is offered to make student transitions to UCLA great ones. See <http://www.orientation.ucla.edu>.

Transfer Alliance Program. The Transfer Alliance Program (TAP) seeks to strengthen academic ties between UCLA and honors programs in over 45 California community colleges to provide specialized transfer programs for participating students. See <http://www.tap.ucla.edu>.

Undergraduate Education Initiatives. Undergraduate Education Initiatives are innovative programs designed for lower division students that feature best practices in undergraduate education and attract UCLA's most distinguished faculty members from all campus areas. Programs include College General Education, *Fiat Lux* Freshman Seminar Program, Freshman Cluster Program, and Writing II Program. See <http://www.ugeducation.ucla.edu/uei/>.

Undergraduate Research Centers. Undergraduate Research Centers (URC)—one for students in the arts, humanities, and social sciences and one for students in science, engineering, and mathematics—exist as part of a continuing effort by the College to engage undergraduate students in research and creative activities at all levels. See <http://www.ugresearch.ucla.edu>.

UNDERGRADUATE DEGREE REQUIREMENTS

For a complete list of College of Letters and Science degrees, see the table in the front of this catalog.

Degree programs in the College offer students a variety of intellectual challenges by combining a wide distribution of courses and the opportunity to specialize in one particular field. To this end, students are required to select lower division courses that provide general foundations of human knowledge. In upper division courses, they concentrate on one major field of interest.

As described below, College students must meet three types of requirements for the Bachelor of Arts or Bachelor of Science degree:

1. University requirements
2. College requirements
3. Department requirements

UNIVERSITY REQUIREMENTS

The University of California has two requirements that undergraduate students must satisfy in order to graduate: (1) Entry-Level Writing or English as a Second Language and (2) American History and Institutions. Students who do not satisfy the Entry-Level Writing requirement prior to enrollment must pass an approved course or other program prescribed by their UC campus of residence. Only after satisfying the Entry-Level Writing requirement can they take for transfer credit an English composition course after enrolling at UCLA. See Degree Requirements in the Undergraduate Study section for details.

COLLEGE REQUIREMENTS

The College of Letters and Science has seven requirements that must be satisfied for the award of the degree: unit, scholarship, academic residence, writing, quantitative reasoning, foreign language, and general education.

UNIT REQUIREMENT

Students must satisfactorily complete for credit a minimum of 180 units for the bachelor's degree. At least 60 of the 180 units must be upper division courses numbered 100 through 199. A maximum of 216 units is permitted. Students with advanced placement or international baccalaureate (transfer) credit may exceed the unit maximum by the amount of that credit.

SCHOLARSHIP REQUIREMENT

Students must earn at least a C (2.0) grade-point average in all courses undertaken at UCLA for receipt of the bachelor's degree. They must also attain a 2.0 GPA in a major and satisfy both the course and scholarship requirements for that major, including preparation for the major.

ACADEMIC RESIDENCE REQUIREMENT

Thirty-five of the final 45 units completed for the bachelor's degree must be earned in residence in the College. A minimum of 24 upper division units must be completed in the major while in residence in the College. The academic residence requirements apply to all students, both continuing and transfer.

College of Letters and Science Structure of a Degree

University Requirements

1. Entry-Level Writing or English as a Second Language
2. American History and Institutions

College Requirements

1. Unit
2. Scholarship
3. Academic Residence
4. Writing Requirement
 - Writing I
 - Writing II
5. Quantitative Reasoning
6. Foreign Language
7. General Education
 - Foundations of Arts and Humanities
 - Foundations of Society and Culture
 - Foundations of Scientific Inquiry

Department Requirements

1. Preparation for the Major
2. The Major

Courses that do not satisfy specific University, College, or department requirements are referred to as electives and can be used to meet the minimum unit requirement for graduation.

WRITING REQUIREMENT

Students must complete the University's Entry-Level Writing or English as a Second Language (ESL) requirement prior to completing the College writing requirement.

New students admitted to the College are required to complete a two-term writing requirement—Writing I and Writing II. Two courses in English composition are required for graduation. Both courses must be taken for letter grades, and students must receive grades of C or better (C– grades are not acceptable).

Writing I. The Writing I requirement must be satisfied within the first three terms of enrollment by completing English Composition 3 or 3H, or an equivalent course, with a grade of C or better (C– or a Passed grade is not acceptable).

The Writing I requirement may also be satisfied by scoring 4 or 5 on one of the College Board Advanced Placement Tests in English or a combination of a score of 720 or higher on the SAT Reasoning Test Writing Section and superior performance on the English Composition 3 Proficiency Examination.

Students whose native language is not English may satisfy the Writing I requirement by completing English as a Second Language 36 or an equivalent course with a grade of C or better (C– or a Passed grade is not acceptable). Admission into the course is determined by completion of English as a Second Language 35 with a passing grade or proficiency demonstrated on the English as a Second Language Placement Examination (ESLPE).

Qualifying examination scores and courses are determined by the College Faculty Executive Committee. Qualifying scores may be viewed on the Office of Undergraduate Admissions and Relations with Schools website. Approved courses are published in the *UCLA Schedule of Classes*.

Writing II. The Writing II requirement must be satisfied within seven terms of enrollment by completing one course from a list approved by the College Faculty Executive Committee. The course must be completed with a grade of C or better (C– or a Passed grade is not acceptable). Writing II courses are listed in the *Schedule of Classes* at <http://www.registrar.ucla.edu/soc/writing.htm> and are available in College Academic Counseling.

Applicable courses may also be applied toward preparation for the major requirements and, if approved for general education (GE) credit, may fulfill a GE requirement.

Transfer students with 90 or more units who have completed the Intersegmental General Education Transfer Curriculum (IGETC) will have satisfied the Writing I and Writing II requirements. No transfer student is admitted to the College without completing, with a grade of C or better (C– grade is not acceptable), a college-level writing course that the Office of Undergraduate Admissions and Relations with Schools accepts as equivalent to English Composition 3.

QUANTITATIVE REASONING REQUIREMENT

The quantitative reasoning requirement may be satisfied by completing one approved UCLA course (see

list below) or an equivalent course within the first seven terms of enrollment. The course must be taken for a letter grade, and students must receive a grade of C or better (C– grade is not acceptable).

The requirement may also be satisfied by achieving an SAT Reasoning Test Mathematics Section score of 600 or higher or an SAT Subject Test in Mathematics score of 550 or higher. Approved UCLA courses and examinations, and qualifying scores, are determined by the College Faculty Executive Committee. Qualifying examinations and scores may be viewed on the Office of Undergraduate Admissions and Relations with Schools website. Approved courses are listed below.

Applicable courses may also be applied toward preparation for the major requirements and, if approved for general education (GE) credit, may fulfill a GE requirement.

Transfer students with 90 or more units who have completed the Intersegmental General Education Transfer Curriculum (IGETC) will have satisfied the quantitative reasoning requirement. No transfer student is admitted to the College without completing, with a grade of C or better (C– grade is not acceptable), a college-level quantitative reasoning course that the Office of Undergraduate Admissions and Relations with Schools accepts as equivalent to those approved by the College Faculty Executive Committee.

Approved courses include Biostatistics 100A, 100B, Mathematics 2 (or any higher numbered course except 19, 71SL, 72SL, 89, 89HC, 98XA, 98XB, 99, 103A, 103B, 103C, 105A, 105B, 105C, 189, 189HC, 195, 197, 199), Philosophy 31, Political Science 6, 6R, Program in Computing 10A, 10B, 10C, Statistics 10, 10H, 11, 12, 13, 14.

FOREIGN LANGUAGE REQUIREMENT

The foreign language requirement may be satisfied by one of the following methods: (1) completing a college-level foreign language course equivalent to level three or above at UCLA or (2) scoring 3, 4, or 5 on the College Board Advanced Placement (AP) foreign language examination in Chinese, French, German, Italian, Japanese, or Spanish, or scoring 4 or 5 in Latin, thereby earning College credit or (3) presenting a UCLA foreign language departmental examination score indicating competency through level three. Consult the *Schedule of Classes* for times and places of the regularly scheduled examinations. Students who wish to demonstrate proficiency in a language that is taught in a UCLA department that has no scheduled examination should contact the appropriate department to arrange for one. Students wishing to take an examination in a language not taught at UCLA should contact a College counselor.

The following language courses may be used to fulfill the foreign language requirement:

African Languages (Applied Linguistics) 1A-1B-1C or 15 (Swahili); 7A-7B-7C or 17 (Zulu); 11A-11B-11C or 25 (Yoruba); 27 (Xhosa); 29 (Igbo); 31A-31B-31C or 35 (Bambara); 41A-41B-41C or 45 (Hausa); 51A-51B-51C or 56 (Amharic); 55 (Tigrinya); 61A-61B-61C (Wolof); 75 (Chichewa); 85 (Setswana)
Afrikaans (Germanic Languages) 105A and 105B

Ancient Near East (Near Eastern Languages) 120A-120B-120C (Ancient Egyptian); 140A-140B-140C (Sumerian)

Arabic (Near Eastern Languages) 1A-1B-1C or 8

Armenian (Near Eastern Languages) 101A-101B-101C or 104A-104B-104C

Berber (Near Eastern Languages) 101A-101B-101C

Bulgarian (Slavic Languages) 101A-101B-101C

Chinese (Asian Languages) 1, 2, and 3, or 1A, 2A, and 3A, or 8 or 8A

Czech (Slavic Languages) 101A-101B-101C

Dutch (Germanic Languages) 103A-103B, and 103C, or 104A-104B

Filipino (Asian Languages) 1, 2, and 3, or 8

French (French and Francophone Studies) 1, 2, and 3, or 8

German (Germanic Languages) 1, 2, and 3, or 8

Greek (Classics) 1, 2, and 3, or 16; 15 (Modern Greek)

Hebrew (Near Eastern Languages) 1A-1B-1C or 8

Hindi-Urdu (Asian Languages) 1, 2, and 3, or 3R

Hungarian (Slavic Languages) 101A-101B-101C

Indigenous Languages of the Americas (Linguistics) 17 or 18A-18B-18C (Quechua)

Indonesian (Asian Languages) 1, 2, and 3

Iranian (Near Eastern Languages) 1A-1B-1C or 8 or 20A-20B-20C (Persian); 111A-111B-111C (Kurdish)

Italian 1, 2, and 3, or 9

Japanese (Asian Languages) 1, 2, and 3, or 8

Korean (Asian Languages) 1, 2, and 3, or 1A, 2A, and 3A, or 8

Latin (Classics) 1, 2, and 3, or 16

Lithuanian (Slavic Languages) 101A-101B-101C or 103

Polish (Slavic Languages) 101A-101B-101C

Portuguese (Spanish and Portuguese) 1, 2, and 3, or 102A-102B

Romanian (Slavic Languages) 101A-101B-101C or 103

Russian (Slavic Languages) 1, 2, and 3, or 10 or 11A-13B (two units each) or 15A-15B or 100B

Scandinavian 1, 2, and 3, or 8 (Swedish); 11, 12, and 13 (Norwegian); 21, 22, and 23 (Danish)

Semitics (Near Eastern Languages) 140A-140B and 141 (Akkadian)

Serbian/Croatian (Slavic Languages) 101A-101B-101C

South Asian (Asian Languages) 110A (Sanskrit)

Spanish (Spanish and Portuguese) 1, 2, and 3, or 2A and 3A, or 10

Thai (Asian Languages) 1, 2, and 3, or 3R

Turkic Languages (Near Eastern Languages) 101A-101B-101C (Turkish); 111A-111B-111C (Uzbek); 115A-115B-115C (Azeri)

Ukrainian (Slavic Languages) 101A-101B-101C

Vietnamese (Asian Languages) 1, 2, and 3, or 1A, 2A, and 3A, or 8

Yiddish (Germanic Languages) 101A, 101B, and 101C, or 102B

GENERAL EDUCATION REQUIREMENTS

General education (GE) is more than a checklist of required courses. It is a program of study that (1) reveals to students the ways that research scholars in the arts, humanities, social sciences, and natural sciences create and evaluate new knowledge, (2) introduces students to the important ideas and themes of human cultures, (3) fosters appreciation for the many perspectives and the diverse voices that may be heard in a democratic society, and (4) develops the intellectual skills that give students the dexterity they need to function in a rapidly changing world.

This entails the ability to make critical and logical assessments of information, both traditional and digital; deliver reasoned and persuasive arguments; and

identify, acquire, and use the knowledge necessary to solve problems.

Transfer students with 90 or more units who have completed the Intersegmental General Education Transfer Curriculum (IGETC) will have satisfied the quantitative reasoning requirement.

FOUNDATIONS OF KNOWLEDGE

Students follow a general education curriculum that is grouped into three foundational areas: Foundations of the Arts and Humanities, Foundations of Society and Culture, and Foundations of Scientific Inquiry.

Ten courses (48 units minimum) are required. GE-approved Writing II courses may fulfill an appropriate foundational area. See the foundational area descriptions below for a breakdown of courses required.

Students who complete a GE Cluster series (1) fulfill the Writing II requirement, (2) complete a third of their general education requirements, and (3) receive laboratory/demonstration credit where appropriate.

Courses listed in more than one category can fulfill GE requirements in only one of the cross-listed categories.

Foundations of the Arts and Humanities. Three 5-unit courses, one from each subgroup:

Literary and Cultural Analysis
Philosophical and Linguistic Analysis
Visual and Performance Arts Analysis and Practice

The aim of courses in this area is to provide perspectives and intellectual skills necessary to comprehend and think critically about our situation in the world as human beings. In particular, the courses provide the basic means to appreciate and evaluate the ongoing efforts of humans to explain, translate, and transform their diverse experiences of the world through such media as language, literature, philosophical systems,

College of Letters and Science General Education Requirements

Foundations of the Arts and Humanities

Literary and Cultural Analysis 1 Course
Philosophical and Linguistic Analysis 1 Course
Visual and Performance Arts Analysis
and Practice 1 Course
Total = 15 units minimum

Foundations of Society and Culture

Historical Analysis 1 Course
Social Analysis 1 Course
Third course from either subgroup 1 Course
Total = 15 units minimum

Foundations of Scientific Inquiry

Life Sciences 2 Courses
Physical Sciences 2 Courses
In each subgroup, one of the two courses must be 5 units and carry either laboratory/demonstration or Writing II credit. For students entering Fall Quarter 2009 through Fall Quarter 2011, the laboratory requirement is reduced to one 5-unit course from either subgroup. Other courses in the subgroups may be 4 units.
Total = 18 units minimum (17 min. Fall 2009-Fall 2011)

Total GE 10 Courses/48 Units Minimum

images, sounds, and performances. The courses introduce students to the historical development and fundamental intellectual and ethical issues associated with the arts and humanities and may also investigate the complex relations between artistic and humanistic expression and other facets of society and culture.

Foundations of Society and Culture. Three 5-unit courses, one from each subgroup and a third course from either subgroup:

Historical Analysis
Social Analysis

The aim of courses in this area is to introduce students to the ways in which humans organize, structure, rationalize, and govern their diverse societies and cultures over time. The courses focus on a particular historical question, societal problem, or topic of political and economic concern in an effort to demonstrate how issues are objectified for study, how data is collected and analyzed, and how new understandings of social phenomena are achieved and evaluated.

Foundations of Scientific Inquiry. Four courses, two from each subgroup. One 5-unit course from each subgroup must include either laboratory/demonstration or Writing II credit. For students entering Fall Quarter 2009 through Fall Quarter 2011, the laboratory requirement is reduced to one 5-unit course from either subgroup. Other courses in the subgroups may be 4 units:

Life Sciences
Physical Sciences

The aim of courses in this area is to ensure that students gain a fundamental understanding of how scientists formulate and answer questions about the operation of both the physical and biological world. The courses also deal with some of the most important issues, developments, and methodologies in contemporary science, addressing such topics as the origin of the universe, environmental degradation, and the decoding of the human genome. Through lectures, laboratory experiences, writing, and intensive discussions, students consider the important roles played by the laws of physics and chemistry in society, biology, Earth and environmental sciences, and astrophysics and cosmology.

Foundations Course Lists. Creating and maintaining a general education curriculum is a dynamic process; consequently, courses are frequently added to the list. For the most current list of approved courses that satisfy the Foundations of Knowledge GE plan, consult an academic counselor or see <http://www.registrar.ucla.edu/ge/>.

Advanced Placement Test Credit

Freshmen who entered Fall Quarter 2002 and transfer students who entered Fall Quarter 2004 may not use Advanced Placement (AP) credit to satisfy the College's 10-course foundational area general education requirement. See the AP Chart at <http://www.admissions.ucla.edu/Prospect/APCreditLS.htm>. Consult a departmental or College counselor for applicability of AP credit toward course equivalencies or satisfaction of Preparation for the Major requirements.

Students who entered as freshmen prior to Fall Quarter 2002 and transfer students who entered prior to Fall Quarter 2004 should consult a College counselor for application of AP credit.

Reciprocity with Other UC Campuses

Students who transfer to UCLA from other UC campuses and have met all GE requirements prior to enrolling at UCLA are not required to complete the College GE requirements. Written verification from the dean at the other UC campus is required. Consult a College counselor regarding eligibility for this option.

Intersegmental General Education Transfer Curriculum

Transfer students from California community colleges have the option to fulfill UCLA lower division GE requirements by completing the Intersegmental General Education Transfer Curriculum (IGETC) prior to transfer. The curriculum consists of a series of subject areas and types of courses that have been agreed on by the University of California and the California community colleges. Although GE or transfer core courses are degree requirements rather than admission requirements, students are advised to fulfill them prior to transfer. The IGETC significantly eases the transfer process, as all UCLA GE requirements are fulfilled when students complete the IGETC courses. Students who select the IGETC must complete it entirely before enrolling at UCLA.

Students who are unable to complete one or two IGETC courses prior to transfer may request certification of partial completion of IGETC from their community college. On certification, the remaining courses must be completed with a minimum grade of C in each. Students who fail to complete the remaining IGETC coursework or who are otherwise not eligible for IGETC or partial IGETC are required to complete the College GE requirements.

DEPARTMENT REQUIREMENTS

College departments generally set two types of requirements that must be satisfied for the award of the degree: (1) Preparation for the Major (lower division courses) and (2) the Major (upper division courses). Departments also set requirements for minors and specializations.

PREPARATION FOR THE MAJOR

Admission to a major often requires completion of a set of courses known as Preparation for the Major. Students in life sciences majors must complete a set of preparatory courses known as the Life Sciences Core Curriculum. Each department sets its own Preparation for the Major requirements; see the Curricula and Courses section of this catalog.

THE MAJOR

A major in the College consists of a group of coordinated upper division courses and is designated as departmental, interdepartmental, or individual. Each course applied toward the major and preparation for the major must be taken for a letter grade unless otherwise stipulated by the department. Students who have been away from the University for several terms should consult with their major department or curriculum adviser concerning the requirements under which they are to graduate.

Each department sets its own major requirements; see the Curricula and Courses section of this catalog.

Departmental Majors. A departmental major consists of a minimum of 36 upper division units and a maximum of 60 upper division units. The majors are established and supervised by campus departments.

Interdepartmental Majors. An interdepartmental major consists of a minimum of 48 upper division units and a maximum of 75 upper division units, of which no more than 32 units may be coursework in one department. The programs are administered by interdepartmental committees made up of faculty whose membership is determined by research interest, not by departmental affiliation. By cutting across the usual lines of departmental division, a subject area is studied from the perspectives of different disciplines and a greater degree of program flexibility is achieved.

Individual Capstone Majors. If students have some unusual but definite academic interest for which no suitable major is offered at the University and have completed at least three terms of work (45 units minimum) at the University with a grade-point average of 3.4 or better, they may petition for an individual major that is also a designated capstone major. The consent of the College Honors Programs and the assistance of a faculty adviser are required. Individual majors must be approved by the vice provost for Undergraduate Education.

The individual major must consist of at least 48 and no more than 60 upper division units, a majority of which must be in departments offering a major in the College. A capstone senior thesis of at least 8 but no more than 12 units is required. For details about individual majors, contact the Honors Programs Office, A311 Murphy Hall, (310) 825-1553. See <http://www.honors.ucla.edu/individual.html>.

Double Majors. Students in good academic standing may be permitted to have a double major consisting of departmental majors from two departments within the College. Both majors must be completed within the maximum limit of 216 units, and students must obtain the approval of both departments.

With few exceptions, double majors in the same department are unacceptable. No more than 20 upper division units may be common to both majors.

MINORS AND SPECIALIZATIONS

Students may choose to pursue a minor to complement their major program of study. Minors consist of no fewer than seven courses (28 units) and no more than nine courses (36 units). Some minors also have admission requirements.

Specializations, such as the Computing specialization, are sequences of supplemental courses that enhance work in a major.

For a list of minors and specializations, see the chart at the beginning of this catalog; descriptions are in the Curricula and Courses section.

POLICIES AND REGULATIONS

Degree requirements are subject to policies and regulations, including the following:

STUDENT RESPONSIBILITY

Students should take advantage of academic support resources, but they are ultimately responsible for keeping informed of and complying with the rules, regulations, and policies affecting their academic standing.

STUDY LIST

The Study List is a record of classes that a student is taking for a particular term. The allowable Study List load is up to 19 units. After the first term, students may petition to enroll in more than 19 units if they attained at least a B average the preceding term in a total program of at least 15 units and have an overall grade-point average of 3.0. First-term transfer students from any other campus of the University may carry excess units on the same basis as students who have completed one or more terms at UCLA; however, they are not encouraged to do so.

PROGRESS TOWARD THE DEGREE

UCLA is a full-time institution, and it is expected that students complete their undergraduate degree requirements promptly. Normal progress toward graduation in four years is defined as the completion of 45 units per year, or 15 units per term.

The Degree Progress Report (DPR) is a record of degree requirements and the courses taken to fulfill them. Students are responsible for monitoring their progress toward the degree. They must read and understand the catalog, check the online catalog for updates, and consult regularly with the College and department counselors to confirm they are satisfying all program requirements. Department counselors advise students on progress and completion of the major requirements. College Academic Counseling staff members assist students with College requirements and degree planning and provide DPRs on request. Students can also view DPRs through URSA.

MINIMUM PROGRESS/EXPECTED CUMULATIVE PROGRESS

During a regular term of enrollment, undergraduate students in the College are required to enroll in a minimum of 13 units. Students are also required to meet cumulative progress unit expectations as outlined in the Expected Cumulative Progress Chart at <http://www.ugeducation.ucla.edu/counseling/regulations/exprog.htm>.

The following courses count toward minimum progress and expected cumulative progress but are exempt from the maximum unit limit of 216: 19 (Fiat Lux), 88S (Undergraduate Student Initiated Education seminars), 89 and 189 (honors seminars), 89HC and 189HC (honors contracts), M97X (PEERS lectures), 98X, 98XA, and 98XB (PEERS laboratories), 99 (student research tutorials), 190 (research colloquia), 193 (journal club seminars), 194 (research group or internship seminars), Honors Collegium 101A through 101E, Life Sciences 71SL, 72SL, 73SL, Mathematics 71SL, and 72SL.

REDUCED FEE PROGRAMS

While full-time study is expected and required of students, some students may qualify for part-time study

due to compelling reasons of occupation, home and family responsibilities, or health. Under this policy, part-time status is defined as 10 units or less per term based on enrolled units at the end of the third week, and is presumed to be of a permanent nature. On approval of part-time status, a reduction of the educational fee by one half and a reduction of the nonresident tuition fee by one half are approved.

To be eligible for part-time study, students must provide documentation of occupation, home and family responsibility, or health that prevents them from carrying a full-time study load, as well as documentation of a need for part-time study for a minimum of three consecutive terms. Once approved for part-time study, students must complete two courses of 10 units or less in each of the three consecutive terms. Only under documented extraordinary circumstances is a one-course Study List approved. Documentation must specify that a one-course Study List is warranted.

Students should obtain the petition, Undergraduate Request for Fee Reduction, from College Academic Counseling. The application for part-time study must be submitted with accompanying documentation by Friday of the second week of the term. Students approved for part-time study who become enrolled in or receive credit for more than 10 units during a term must pay the full fees for that term.

DECLARING A MAJOR

Students are expected to select a major by the beginning of their junior year. This may be a program of related upper division courses within a single department (departmental major) or a group of related courses involving a number of departments (interdepartmental major) or, under certain circumstances, a group of courses selected to meet a special need (individual capstone major).

Most entering freshmen are unsure about specific academic goals and request to be admitted to the College as “undeclared.” These students then explore fields of study by taking introductory courses in the physical and life sciences, social sciences, and humanities in search of an area that most excites their interest.

All students with 90 or more units toward a degree are expected to declare a premajor or a major. When they are ready to do so, they obtain approval on a Petition for Declaration of Major from the department or interdepartmental degree committee that governs their intended major.

CHANGING A MAJOR

Students in good academic standing who wish to change their major may petition to do so provided they can complete the new major within the 216-unit limit. Petitions must be submitted to and approved by the department or committee in charge of the new major. Admission to certain majors may be closed or restricted; changes are normally not permitted if students are on probation or have begun their last term.

Students who fail to attain a grade-point average of 2.0 (C) in preparation for the major or major courses may be denied the privilege of entering or continuing in that major. Some departments may have higher grade-point requirements for their preparation and major

courses; consult the appropriate department regarding minimum standards.

REENTERING STUDENTS AND THEIR MAJORS

Students returning to the University to resume their studies after an absence of several years may find their previous major area of study no longer available. They then must select a current major in which to complete their studies. Consult an academic counselor for assistance.

CREDIT LIMITATIONS

The following credit limitations apply to all undergraduate students enrolled in the College. In most cases units are not deducted until the final term before graduation. Students with questions should consult an academic counselor.

Transfer students with credit from other institutions (advanced standing credit) receive a Degree Progress Report (DPR) from Undergraduate Admissions and Relations with Schools indicating the transferable units from former institutions; however, the following credit limitations may reduce the total number of transferred units that apply toward the degree in the College. Consult a counselor in College Academic Counseling about these limitations.

Advanced Placement Tests. Advanced Placement (AP) Test credit may not be applied toward a degree unless students had less than 36 units of credit at the time of the examination(s). See the AP chart at <http://www.admissions.ucla.edu/Prospect/APCreditLS.htm> for UCLA course equivalents and credit allowed for GE requirements.

College Level Examination Program. Credit earned through the College Level Examination Program (CLEP) and through the California State University English Equivalency Examination may not be applied toward the bachelor's degree.

Community College Unit Limit. After completing 105 quarter units toward the degree in all institutions attended, students are allowed no further unit credit for courses completed at a community college.

Credit by Examination. Within the College, eligibility for credit by examination is usually limited to students who have been approved as Departmental Scholars or who are admitted to a departmental honors program or UCLA Honors Programs. Students who have completed a minimum of 12 units at UCLA with a minimum 3.5 overall grade-point average may petition for credit by examination. The examination for that course must be taken successfully before they may petition for credit by examination in another course.

Students may receive credit by examination for only one course out of 10 courses completed. Credit by examination may not be used to gain credit for prior knowledge, audited courses, or courses taken elsewhere. Units for a course taken by examination are applied toward the 216-unit maximum allowable units for graduation. Petitions for credit by examination (with fee) are available only through an appointment with a counselor in the Honors Programs Office, A311 Murphy Hall.

Education Abroad Program. Students participating in the Education Abroad Program may receive a maximum of 48 units of credit toward the degree in addition to the 8 units maximum allowed for the Intensive Language Program.

Foreign Language. Credit is not allowed for completing a less advanced course in grammar and/or composition after students have received credit for a more advanced course. College credit for an international student's native language and literature is allowed for (1) courses taken in native colleges and universities or (2) upper division (advanced language courses only) and graduate courses taken at the University of California or another English-speaking institution of approved standing. No credit is allowed for lower division courses.

Performance Courses. No more than 12 units of music and/or dance performance courses (Ethnomusicology 91A through 91Z, 161A through 161Z, Music 60A through 65, C90A through 90S, 160A through 165, and World Arts and Cultures 5 through 16, 56 through 65, C109A, C113A, 114, C115, 116) may be applied toward the bachelor's degree whether taken at UCLA or another institution.

Physical Education. No more than 4 units in physical education activities courses may be applied toward the bachelor's degree.

Physics Courses. Any two or more courses from Physics 1A, 1AH, 6A, and 10 are limited to a total of 6 units of credit.

ROTC Courses. For students contracted in the Aerospace Studies Department, 36 units of aerospace studies credit may be applied toward the requirements for the bachelor's degree; for students contracted in the Military Science Department, 26 units of military science credit may be applied; for students contracted in the Naval Science Department, 26 units of naval science credit may be applied.

Statistics Courses. Credit is allowed for only one of the following introductory statistics courses: Economics 41, Statistics 10, 10H, 11, 12, 13, 14 (or former Anthropology M80, Geography M40, Sociology M18, or Statistics 10A), or any equivalent course taken at UCLA or another institution.

Upper Division Tutorials. No more than 8 units of credit may be taken per term in upper division tutorials numbered 195 through 199. The total number of units allowed in such courses for a letter grade is 32; see specific restrictions under each departmental listing.

300- and 400-Level Courses. No more than 8 units in the 300 and 400 series of courses may be applied toward the bachelor's degree. Credit is not granted for X300 and X400 courses taken in UCLA Extension.

HONORS

College undergraduate students who achieve scholastic distinction may qualify for the following honors and programs:

COLLEGE HONORS

The highest academic recognition the College confers on its undergraduate students is College Honors,

which is awarded to graduating seniors who successfully complete the College Honors program and who have an overall University of California grade-point average of 3.5 or better. The program provides exceptional undergraduate students an opportunity to pursue individual excellence.

For details on the College Honors program and entry requirements, see <http://www.honors.ucla.edu/program.html>.

DEAN'S HONORS

The Dean's Honors list recognizes high scholastic achievement in any one term. The following criteria are used to note Dean's Honors on the student records: (1) a 3.75 grade-point average in any one term with at least 12 graded units and no grade of NP or I or (2) a 3.66 GPA and at least 56 grade points during the term, with no grade of NP or I. Dean's Honors are automatically recorded on the transcript.

DEPARTMENTAL HONORS

Individual departments and programs in the College offer departmental honors programs. Admission and curricular requirements vary according to the department or program. See the Curricula and Courses section of this catalog for details, and consult the departmental adviser about procedures and arrangements. Students who successfully complete the requirements graduate with departmental honors or highest honors.

LATIN HONORS

Students who have achieved scholastic distinction may be awarded the bachelor's degree with Latin honors. To be eligible, students must have completed 90 or more units for a letter grade at the University of California and must have attained an overall grade-point average at graduation that places them in the top five percent of College graduates (GPA of 3.877 or better) for *summa cum laude*, the next five percent (GPA of 3.792 or better) for *magna cum laude*, and the next 10 percent (GPA of 3.660 or better) for *cum laude*. Coursework taken on the Education Abroad Program is applied toward Latin honors at graduation. The minimum GPAs required are subject to change on an annual basis. Required GPAs in effect in the graduating year (fall, winter, spring, summer) determine student eligibility. Students should consult their Degree Progress Reports or the *Schedule of Classes* for the most current calculations of Latin honors.

DEPARTMENTAL SCHOLAR PROGRAM

Departments may nominate exceptionally promising undergraduate students (juniors and seniors) as UCLA Departmental Scholars to pursue bachelor's and master's degrees simultaneously. Qualifications include completion of 24 courses (96 quarter units) at UCLA or the equivalent at a similar institution, the requirements in preparation for the major, and eligibility to participate in the College Honors program. Students must also have at least one term of coursework remaining at UCLA. To obtain both the bachelor's and master's degrees, students must be provisionally admitted to the Graduate Division, fulfill requirements for each program, and maintain a minimum B average. No course may be used to fulfill requirements for both

degrees. Interested students should consult their department well in advance of application dates for graduate admission. For further information, contact the Honors Programs Office in A311 Murphy Hall or see <http://www.honors.ucla.edu/deptschl.html>.

GRADUATE STUDY

The College of Letters and Science provides graduate students virtually unlimited opportunities for academic pursuit, faculty-sponsored research, and fieldwork relative to specific programs and career goals.

With Graduate Division approval and subject to University minimum requirements, each department sets its own standards for admission and other requirements for the award of master's and doctoral degrees. For complete degree requirements, see *Program Requirements for UCLA Graduate Degrees* at <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>.

For information on the proficiency in English requirements for international graduate students, see Graduate Admission in the Graduate Study section of this catalog.

DAVID GEFFEN SCHOOL OF MEDICINE

A. Eugene Washington, Dean and Vice Chancellor

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At the David Geffen School of Medicine at UCLA, faculty members and students play a dynamic role on campus and in Los Angeles communities. Not only are they in the clinics, wards, and operating rooms of the Ronald Reagan UCLA Medical Center and multiple private and public affiliated medical centers, they are also at work in the facilities of the Molecular Biology Institute, the Department of Physiology, the Health Sciences Computer Center, the Semel Institute for Neuroscience and Human Behavior, and in dozens of other clinical and scientific units. They are in community clinics, health fairs, and schools, and assist at disaster sites in the international community.

Students at the Geffen School of Medicine are exposed to the best of many worlds—strong research-oriented basic and clinical science departments, a hospital consistently ranked among the nation's elite, superb affiliated clinical facilities that provide the full spectrum of teaching settings and patient populations, and a biomedical library that is considered one of the world's best.

Geffen School of Medicine departments are each staffed by a distinguished faculty of respected researchers and practitioners.

They have some of the most technologically advanced equipment and facilities, including two of the nation's 56 hospital-based biomedical cyclotrons producing short-lived radioisotopes for biological research and diagnostic nuclear medicine procedures.

DEGREES AND PROGRAMS

The Geffen School of Medicine offers an M.D. degree program, special programs in affiliation with other hospitals and universities, postgraduate medical training programs, and the following master's and doctoral degrees offered through the UCLA Graduate Division:

Biological Chemistry (M.S., Ph.D.)
Biomathematics (M.S., Ph.D.)
Biomedical Physics (M.S., Ph.D.)
Clinical Research (M.S.)
Human Genetics (M.S., Ph.D.)
Microbiology, Immunology, and Molecular Genetics (M.S., Ph.D.)
Molecular and Medical Pharmacology (M.S., Ph.D.)
Molecular, Cellular, and Integrative Physiology (Ph.D.)
Neurobiology (M.S., C.Phil., Ph.D.)
Neuroscience (Ph.D.)
Pathology—Cellular and Molecular Pathology (M.S., Ph.D.)
Psychiatry and Biobehavioral Sciences Clinical Psychology Internship (Certificate)

M.D. DEGREE PROGRAM

The Doctor of Medicine (M.D.) degree program develops a comprehensive scientific and humanistic approach to patient care that includes basic sciences, preventive medicine, diagnosis, and therapeutic skills for evidence-based medicine. Clinical skills are taught in the context of anatomical, molecular, pathophysiological, and psychosocial factors in health, disease, and treatment.

The curriculum is an integrated, innovative, organ system-based, and workshops program, with problem-based learning laboratories to maximize the educational experience. Because medical school is but one phase in a physician's education, the curriculum stresses self-directed learning to prepare students for a future in which scientific knowledge, social values, and human needs are ever changing. Formats for instruction include lectures, problem-based learning tutorials, seminars, laboratories, standardized patient exercises, and clinical experiences; students are involved in patient care from their first week through graduation.

The M.D. program is a four-year medical curriculum that prepares students broadly for careers in research, practice, and teaching in the medical field of their choice. The curriculum emphasizes issues of growing importance such as primary care, research opportunities for careers in academic medicine, human genetics and the evolving world of gene therapy, psychosocial issues of health and disease, preventive medicine, medical ethics, and clinical reasoning.

For details on the M.D. curriculum or to apply to the program, see <http://www.medstudent.ucla.edu/prospective/> or contact the Geffen School of Medicine Admissions Office, 12-105 CHS, UCLA, Box 957035, Los Angeles, CA 90095-7035. See

Students at the Geffen School of Medicine are exposed to the best of many worlds—strong research-oriented basic and clinical science departments, a hospital consistently ranked among the nation's elite, and superb clinical facilities.



<http://career.ucla.edu/Students/GradProfSchCounseling/Overview.aspx> for details on the four-year premedical studies program.

SPECIAL PROGRAMS

Special programs address the needs and issues of specific communities and populations.

UCR/UCLA Thomas Haider Program in Biomedical Sciences

The UCR/UCLA Thomas Haider Program in Biomedical Sciences is a cooperative venture involving UC Riverside, the Geffen School of Medicine, and selected Riverside community sites. The program mission is to prepare graduates for distinguished medical careers in service to the people of California, with emphasis on the needs of the underserved, inland, and rural populations. See <http://medschool.ucr.edu/haider.html>.

CDU/UCLA Medical Education Program

The CDU/UCLA Medical Education Program is designed to attract students who are interested in addressing the concerns of urban underserved populations. Students in the program spend their first two years at the UCLA campus and complete their last two years of clinical work in specially designated training centers in medically underserved communities and at UCLA and affiliated hospitals. See <http://www.cdrewu.edu>.

UCLA PRIME Program

The UCLA PRIME Program is a five-year dual degree program to develop leaders in medicine who address policy, care, and research in healthcare for underserved populations. The program leads to the M.D. and a master's degree in areas that complement the mission of the program. Options for the master's degree include M.B.A., M.P.H., and M.P.P. Each year the class is comprised of 12 students. Students identify with one of three programs: PRIME UCLA-CHS, PRIME UCLA-UCR, or PRIME UCLA-CDU. A commitment to serve and experience working with diverse medically disadvantaged populations is paramount. See <http://www.medsch.ucla.edu/uclaprime/> or call (310) 794-5912.

ARTICULATED AND CONCURRENT DEGREE PROGRAMS

The Geffen School of Medicine and the Graduate Division offer an articulated degree program that allows students to earn both the M.D. and Ph.D. in about seven years, depending on the course of study and research. The Ph.D. may be awarded in one of several medical sciences fields. Call the Medical Scientist Training Program at (310) 794-1817 for details or see <http://mstp.healthsciences.ucla.edu/pages/>.

A concurrent program with the John E. Anderson Graduate School of Management and an articulated program with the School of Public Health allow UCLA medical students to earn both the M.D. and M.B.A. or the M.D. and M.P.H. degrees over five years by following a designated course of study and some shared coursework. Separate application must be made to the Anderson School or School of Public Health during the third year of medical school. Call (310) 825-3970 for information.

POSTGRADUATE MEDICAL TRAINING

Postgraduate medical training programs, including residencies, are offered through all the clinical departments at UCLA and the affiliated training hospitals such as Harbor-UCLA, Cedars-Sinai, and Greater Los Angeles VA System. Programs at the affiliated institutions broaden the scope of the teaching programs by providing extensive clinical facilities, special population settings, and diverse practice modes. Information about these programs is available from the individual clinical departments of the Geffen School of Medicine or the affiliated hospitals.

SEMEL INSTITUTE FOR NEUROSCIENCE AND HUMAN BEHAVIOR

The Semel Institute is one of the world's leading interdisciplinary research and education institutes devoted to the understanding of complex human behavior. Fourteen research centers, ranging from genetics to human culture, together with research initiatives distributed widely across the academic departments of the Geffen School of Medicine and the College of Letters and Science provide a comprehensive and outstanding research and training environment for the study of neuroscience and behavior.

The research portfolio of the 400 faculty members, graduate students, and fellows who work in the institute spans behavioral genetics, developmental neurobiology, cognitive neuroscience, neuropharmacology, brain imaging, clinical research, health policy, and sociocultural studies of human behavior and its disorders. For further information, see <http://www.semel.ucla.edu>.

GRADUATE SCHOOL OF EDUCATION AND INFORMATION STUDIES

Aimée Dorr, Dean

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The Graduate School of Education and Information Studies (GSE&IS) is dedicated to inquiry, the advancement of knowledge, the improvement of professional practice, and service to the education and information professions. GSE&IS develops future generations of scholars, teachers, information professionals, and institutional leaders. Its work is guided by the principles of individual responsibility and social justice, an ethic of caring, and commitment to the communities it serves.

Faculty members and students of GSE&IS combine a passion and skill for cutting-edge research with an appreciation for its application in the widely diverse cultures and communities in which it exists. These

communities serve as fertile training ground for students in all programs, through internships, research projects, summer placements, and teaching opportunities.

GSE&IS is committed to the highest quality professional education and to the application of research and scholarship to the challenges facing a diverse and increasingly urbanized world.

DEPARTMENTS AND PROGRAMS

The school consists of two departments—the Department of Education and the Department of Information Studies. Both have a clear and strong commitment to the pursuit of excellence in their research-oriented and professional degree programs.

Research-oriented master's and doctoral programs prepare top scholars in their respective fields, while future librarians, archivists, and information professionals, teachers, student affairs practitioners, school administrators, and superintendents are prepared in the various master's and doctoral professional degree programs. Additionally, UCLA Lab School (Corinne A. Seeds campus) provides an innovative educational program for students 4 to 12 years old.



DEGREES

The school offers the following degrees, in addition to an undergraduate minor in Education Studies:

- Education (M.A., M.Ed., Ed.D., Ph.D.)
- Educational Administration (Joint Ed.D. with UC Irvine)
- Information Studies (Ph.D.)
- Library and Information Science (M.L.I.S., accredited by American Library Association)
- Moving Image Archive Studies (M.A.)
- Special Education (Joint Ph.D. with California State University, Los Angeles)

Credential Programs

The school offers three credential programs that are accredited by the California Commission on Teacher Credentialing:

- Administrative Services Credential
- Preliminary Administrative Services Credential
- Teacher Credential

Articulated Degree Programs

- The school offers two articulated degree programs:
- Education M.Ed./Latin American Studies M.A.
- Library and Information Science M.L.I.S./Latin American Studies M.A.

Concurrent Degree Programs

- The school offers two concurrent degree programs:
- Education M.Ed., M.A., Ed.D., or Ph.D./Law J.D.
- Library and Information Science M.L.I.S./Management M.B.A.

ADMISSION

Admission criteria established by the UCLA Graduate Division require a bachelor's degree from a regionally accredited institution comparable in standards and content to a bachelor's degree from the University of California. A scholastic average of B (3.0 on a 4.0 scale) or better—or its equivalent if the letter grade system is not used—is required for the last 60 semester units or last 90 quarter units of undergraduate study and in any postbaccalaureate study. Further requirements for international students are explained in the Graduate Study section. See <http://www.gdnet.ucla.edu/gasaa/admissions/admisinfo.html>.

Departments and programs in the school set additional admission requirements. See <http://www.gseis.ucla.edu/oss/>.

DEGREE REQUIREMENTS

Specific degree requirements vary according to the department and program. Refer to *Program Requirements for UCLA Graduate Degrees* at <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>.

RESEARCH CENTERS

The centers outlined below provide GSE&IS with valuable resources that support school programs and research. See <http://www.gseis.ucla.edu/research/>.

CENTER FOR IMPROVING CHILD CARE QUALITY

The Center for Improving Child Care Quality (CICCQ) conducts high-quality, policy-relevant research, with focus on improving the early care and education environments of young children. Utilizing expertise in the areas of child development, professional development, child care quality, attachment, and observational and survey research methodology, CICCQ conducts basic, applied, and policy-driven research at the local, state, and national levels. CICCQ takes a collaborative approach to the local evaluation process, building relationships with community partners to inform research, practice, and professional development. The center has assisted numerous community-based agencies in evaluating the effectiveness of their programs to improve the quality of early care and education programs. CICCQ also works with local government and policy groups, including the Los Angeles County First 5 Commission, Los Angeles County Office of Child Care, and Los Angeles Universal Preschool. See <http://www.gseis.ucla.edu/~ciccq/>.

CENTER FOR INFORMATION AS EVIDENCE

The Center for Information as Evidence (CIE) serves as an interdisciplinary forum to address the ways in which information objects and systems are created, used, and preserved as legal, administrative, scientific, social, cultural, and historical evidence. The center is currently working with archival educators from across the country and around the world in a multiyear Institute of Museum and Library Services (IMLS) grant to expand archival education and research through a doctoral fellowship program and the Archival Education

The Graduate School of Education and Information Studies is committed to understanding and improving teaching and learning, educational practice, information policy, and information systems in a diverse society.

and Research Institute (AERI). More information about CIE is available at <http://www.gseis.ucla.edu/cie/>. See <http://aeri.gseis.ucla.edu> for information about AERI.

CENTER FOR INTERNATIONAL AND DEVELOPMENT EDUCATION

The Center for International and Development Education (CIDE) is a research and action center whose mission is to enhance educational capacity, facilitate human and economic development, and promote cross-cultural exchanges related to international and development education. This is accomplished through a series of publications, research programs, practical initiatives, and networks with existing development and academic institutions. Research and training are conducted in such areas as teacher development and higher education transformation. CIDE acts as a hub for researchers, graduate students, and organizations to network with and learn about critical issues in international and development education from a wide range of fields and disciplines. See <http://www.cideucla.org>.

CENTER FOR RESEARCH AND INNOVATION IN ELEMENTARY EDUCATION

The Center for Research and Innovation in Elementary Education (CONNECT) links nationally recognized researchers with teachers and administrators at UCLA Lab School and public schools in Southern California to investigate central issues in education. Programs are designed to examine children's learning and development from preschool to sixth grade; investigate the work of teaching diverse student populations; encourage exchange of ideas among scholars, practitioners, and policymakers concerned with child development and school reform; and disseminate effective educational approaches and research knowledge through its website, newsletter, publications, and professional development workshops cosponsored with UCLA Lab School. See <http://www.connect.gseis.ucla.edu>.

CENTER FOR STUDY OF EVALUATION/ NATIONAL CENTER FOR RESEARCH ON EVALUATION, STANDARDS, AND STUDENT TESTING

For over 40 years, the Center for Study of Evaluation (CSE) and, more recently, the National Center for Research on Evaluation, Standards, and Student Testing (CRESST) have contributed to the development of scientifically based evaluation and testing techniques, vigorously encouraged the development, validation, and use of sound data for improved accountability and decision making, and aggressively explored technological applications to improve assessment and evaluation practice. Today CSE/CRESST research and development serve government, military, and pre-K through college-level education and training. CSE/CRESST models-based accountability research and development are being scaled to help learners of almost every age. See <http://www.cse.ucla.edu>.

CENTER X

Center X provides a unique setting where researchers and practitioners collaborate to design and conduct programs that prepare and support K-12 education

professionals in urban schools. Center X carries out its work through the preservice Teacher Education Program, Principal Leadership Institute, School-University Partnerships, California Subject Matter Projects, and research and publications. Center X work is guided by a series of conceptual principles that prepare and support teachers, principals, and other school leaders to have the commitment, capacity, and resilience to promote social justice, caring, and instructional equity in underperforming urban schools. See <http://centerx.gseis.ucla.edu>.

CIVIL RIGHTS PROJECT/PROYECTO DERECHOS CIVILES

The Civil Rights Project/Proyecto Derechos Civiles is a research center dedicated to creating a new generation of research on civil rights and racial and ethnic equity. It was founded in 1996 and moved from Harvard University to UCLA in 2007. It is dedicated to bridging the gap between research, law, and policy and to very serious communication across disciplines and between the University and community leaders, educators, policymakers, and civil rights advocates. The project is nonpartisan and involves collaboration with researchers across the nation. It works both on leading-edge current issues and on long-term issues that must be resolved to achieve racial and ethnic equity in the U.S. Its work is consistently multiracial in nature. At UCLA it is intensifying its interests in issues of immigration and language rights and developing a special focus on California and the greater Los Angeles area. See <http://civilrightsproject.ucla.edu>.

HIGHER EDUCATION RESEARCH INSTITUTE

The Higher Education Research Institute (HERI) serves as an interdisciplinary center for research, evaluation, information, policy studies, and research training in postsecondary education. HERI's research program covers a variety of topics, including the outcomes of postsecondary education, leadership development, institutional transformation, faculty performance, federal and state policy, and educational equity. Visiting scholars, faculty members, and graduate students have made use of HERI facilities and research resources since its affiliation with UCLA in 1973. The institute's holdings include more than 100 datasets that are regularly maintained for analysis of postsecondary education. See <http://www.gseis.ucla.edu/heri/index.php>.

INSTITUTE FOR DEMOCRACY, EDUCATION, AND ACCESS

The Institute for Democracy, Education, and Access (IDEA) seeks to understand and challenge pervasive racial and social class inequalities in education. In addition to conducting research and policy analysis, IDEA supports educators, public officials, advocates, community activists, and young people as they design, conduct, and use research to make high-quality public schools and successful college participation routine occurrences in all communities. IDEA also studies how research combines with strategic communications and public engagement to promote widespread participation in civic life. See <http://www.idea.gseis.ucla.edu>.

**INSTITUTE FOR STUDY OF EDUCATIONAL
ENTREPRENEURSHIP**

Through the Institute for Study of Educational Entrepreneurship (ISEE), scholars and practitioners collaborate to investigate and analyze the current and potential impact of educational entrepreneurship, for profit, nonprofit, and intraorganizational, as a driving force for promoting educational reform and equitable access in the public school sector. Its current major focus is on the analysis of charter school efficacy. See <http://www.isee.gseis.ucla.edu>.

PAULO FREIRE INSTITUTE

The Paulo Freire Institute/UCLA (PFI) seeks to gather scholars and critics of Freire's pedagogy in permanent dialog to foster the advancement of new pedagogical theories and concrete interventions in the real world. The objective of PFI is to bring together research, teaching, and technology while concentrating on five major areas: studies of globalization and education, teacher education, a comparative perspective on Latin American education, the politics of education (research on gender, race, class, and the state), and Paulo Freire's political philosophy and critical pedagogy. See <http://www.paulofreireinstitute.org>.

SCHOOL MANAGEMENT PROGRAM

The School Management Program (SMP) is a nonprofit school reform initiative committed to the sustainable transformation of schools into learner-centered organizations where all students can achieve at high levels. Teams work with school communities to improve student achievement by fostering collaborative learning communities resulting in personal transformation through a continuous cycle of inquiry and where professional development enhances teacher effectiveness. The SMP model of school improvement planning provides sound tools/processes that support the ongoing learning of both the individual and the organization. See <http://www.smp.gseis.ucla.edu>.

**SUDIKOFF FAMILY INSTITUTE FOR
EDUCATION AND NEW MEDIA**

Enhancing awareness of critical issues related to education and information studies, the Sudikoff Family Institute for Education and New Media utilizes the popular press and other media to disseminate the work of GSE&IS scholars to policymakers, educators, and the general public. Sudikoff Fellows are selected each year from GSE&IS faculty members to inform the public and provide perspective on a number of issues in education and new media. The institute serves as a liaison between the Fellows and the greater public, offering communications support and expertise. See <http://www.gseis.ucla.edu/~sudikoff/>.

**UC ALL-CAMPUS CONSORTIUM ON
RESEARCH FOR DIVERSITY**

The UC All-Campus Consortium on Research for Diversity (UC ACCORD) is an interdisciplinary, multicampus research center devoted to a more equitable distribution of educational resources and opportunities in California's diverse public schools and universities. This distinctive UC voice serves as an information and

research clearinghouse and catalyst for promoting the delivery of high-quality, equitable schooling to all students. UC ACCORD harnesses the research expertise of the University of California to identify strategies that will increase college preparation, access, and retention. Policymakers, researchers, teachers, outreach staff, and students all benefit from this source of reliable information for equitable education policy and practice. See <http://www.ucaccord.gseis.ucla.edu>.

**HENRY SAMUELI
SCHOOL OF
ENGINEERING AND
APPLIED SCIENCE**

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Over the years, UCLA Engineering has grown into one of the top engineering programs in the country. Though the school has changed in many ways, it has not wavered from its early vision of developing an engineering program with imagination and integrity. The UCLA Henry Samueli School of Engineering and Applied Science, founded in 1945, is committed to creating a better future for Los Angeles, California, and the world.

UCLA Engineering supports dynamic programs in traditional and new areas of study and research, including bioengineering, embedded networked sensing systems, bio-nano-info technology, wireless communications and computing, signal processing, sensor technologies, nanotechnology and nanomanufacturing, automated flight and autonomous systems, alternative energy systems, smart structures and materials, and protection of the environment. Partnerships across campus reflect the school's commitment to a wide range of interdisciplinary activities.

Students receive their education and gain hands-on experience through classroom lectures and participation in real-world applications. The undergraduate degree curriculum provides well-rounded exposure to the humanities, social sciences, and the fine arts. It also includes a technical breadth requirement, designed for students to gain a working knowledge of a technical field outside their major. The school also recognizes that engineers have the ethical and social responsibility to create, protect, and manage technology. Students are committed to a high standard of achievement and contribute to the excellence in engineering at UCLA.

DEPARTMENTS AND PROGRAMS

The Henry Samueli School of Engineering and Applied Science has seven departments and one interdepartmental program offering study in aerospace engineering, bioengineering, biomedical engineering,

chemical engineering, civil engineering, computer science and engineering, electrical engineering, manufacturing engineering, materials engineering, and mechanical engineering—all of which are accredited by the Accreditation Board for Engineering and Technology (ABET), the nationally recognized accrediting body for engineering programs. The computer science and computer science and engineering programs are accredited by the Computing Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, (410) 347-7700.

For specific programs, see the department information in the Curricula and Courses section or refer to the school *Announcement* available from the Office of Academic and Student Affairs, 6426 Boelter Hall.

DEGREES

The school offers the following degrees, in addition to an undergraduate minor in Environmental Engineering:

Aerospace Engineering (B.S., M.S., Ph.D.)
Bioengineering (B.S.)
Biomedical Engineering (M.S., Ph.D.)
Chemical Engineering (B.S., M.S., Ph.D.)
Civil Engineering (B.S., M.S., Ph.D.)
Computer Science (B.S., M.S., Ph.D.)
Computer Science and Engineering (B.S.)
Electrical Engineering (B.S., M.S., Ph.D.)
Engineering (M.Engr., online M.S., Engr.)
Engineering and Applied Science (Graduate Certificate of Specialization)
Manufacturing Engineering (M.S.)
Materials Engineering (B.S.)
Materials Science and Engineering (M.S., Ph.D.)
Mechanical Engineering (B.S., M.S., Ph.D.)

Concurrent Degree Program

The school offers one concurrent degree program:
Computer Science M.S./Management M.B.A.

UNDERGRADUATE ADMISSION

Applicants for admission to the school must satisfy the University admission requirements as outlined in the Undergraduate Study section. Students must select a major within the school when applying for admission. In the selection process many elements are considered, including grades, test scores, and academic preparation.

Applicants are accepted at either the freshman or junior level.

ADMISSION AS A FRESHMAN

Freshman applicants must satisfy the examination requirement described in the Undergraduate Study section and should take required tests by the December test date, since scores are part of the review process. Instruct the testing agencies to send results directly to UCLA Undergraduate Admissions and Relations with Schools.

Applicants must submit scores from an approved core test of mathematics, language arts, and writing. This requirement may be satisfied by taking either (1) the

ACT Assessment plus Writing Tests or (2) the SAT Reasoning Test. In addition, all applicants must complete two SAT Subject Tests in two different subject areas selected from history/social studies, mathematics (Mathematics Level 2 only), laboratory science, and a language other than English.

Applicants to the school are strongly encouraged to take the following SAT Subject Tests: Mathematics Level 2 and a laboratory science test (Biology E/M, Chemistry, or Physics) that is closely related to the intended major.

Applicants seeking admission to the school in freshman standing must also satisfy the following University admission requirements:

United States History (one year of U.S. history or one-half year of U.S. history and one-half year of civics or American government)	1 year
English	4 years
Mathematics	4 years
Physics	1 year
Chemistry	1 year
Foreign language	2 years
Other college preparatory requirements	2 years

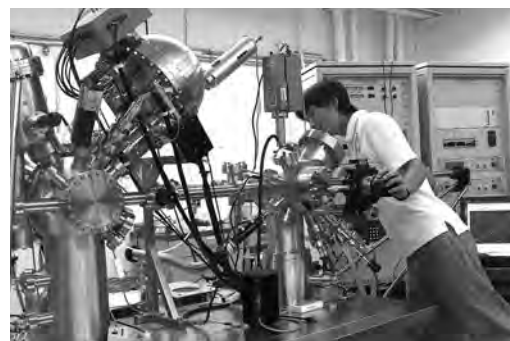
Credit for Advanced Placement Tests. Students may fulfill part of the school requirements with credit allowed at the time of admission for College Board Advanced Placement (AP) Tests with scores of 3, 4, or 5. Students with AP Test credit may exceed the 213-unit maximum by the amount of this credit. AP Test credit for freshmen entering in Fall Quarter 2010 fulfills HSSEAS requirements as indicated on the school AP chart at <http://www.admissions.ucla.edu/Prospect/APCreditEN.htm>.

Students who have completed 36 quarter units after high school graduation at the time of the examination receive no AP Test credit.

ADMISSION AS A JUNIOR

Students who begin their college work at a California community college are expected to remain at the community college to complete the lower division requirements in chemistry, computer programming, English composition, mathematics, physics, and the recommended engineering courses before transferring to UCLA. Transfer students who have completed the recommended lower division program in engineering at California community colleges normally complete the remaining requirements for one of the B.S. degrees in six terms (two academic years) of full-time study. Students who select certain majors, such as Computer Science and Engineering or Chemical Engineering, may be required to complete additional lower division courses for the major sequence.

With strong programs in traditional engineering, the Henry Samueli School of Engineering and Applied Science also advances research in the evolving fields of biomedical engineering, wireless communications and networking, and micromachines.



Lower Division Requirements

Applicants to the school in junior standing should have completed 90 quarter units (60 semester units) in good standing, including the following lower division minimum subject requirements:

1. Chemistry courses equivalent to UCLA's Chemistry and Biochemistry 20A, 20B, 20L (only Chemistry and Biochemistry 20A is required for the Computer Science and Computer Science and Engineering majors and the electrical engineering and computer engineering options of the Electrical Engineering major; the Chemical Engineering curriculum also requires Chemistry and Biochemistry 30A, 30AL, 30B, 30BL, which do not need to be taken prior to admission to UCLA)
2. Mathematics courses equivalent to UCLA's Mathematics 31A, 31B, 32A, 32B, 33A, 33B
3. Physics courses equivalent to UCLA's Physics 1A, 1B, 1C, 4AL, 4BL, depending on curriculum selected
4. Computer programming courses in C++, C, or Java (C++ is strongly recommended); applicants to majors in Computer Science, Computer Science and Engineering, and Electrical Engineering should take a programming course equivalent to UCLA's Computer Science 31
5. Additional life sciences (4 units), English composition (5 units), and humanities/social sciences courses (total of 16 quarter units minimum) equivalent to HSSEAS general education (GE) courses

Transfer students must also complete a course equivalent to UCLA's English Composition 3 and a second UC-transferable English composition course.

All lower division requirements should be completed by the end of the spring term prior to anticipated enrollment at UCLA.

Transfer Credit

Students transferring to the school from institutions that offer instruction in engineering subjects in the first two years, particularly California community colleges, are given credit for certain engineering core requirements.

Many sophomore courses in circuit analysis, strength of materials, and properties of materials may satisfy Electrical Engineering 100, Civil and Environmental Engineering 108, and Materials Science and Engineering 104 requirements respectively. Check with the Office of Academic and Student Affairs.

UNDERGRADUATE DEGREE REQUIREMENTS

Henry Samueli School of Engineering and Applied Science students must meet three types of requirements for the Bachelor of Science degree:

1. University requirements
2. School requirements
3. Department requirements

UNIVERSITY REQUIREMENTS

The University of California has two requirements that undergraduate students must satisfy in order to

graduate: (1) Entry-Level Writing or English as a Second Language and (2) American History and Institutions. See Degree Requirements in the Undergraduate Study section for details.

SCHOOL REQUIREMENTS

The Henry Samueli School of Engineering and Applied Science has seven requirements that must be satisfied for the award of the degree: unit, scholarship, academic residence, writing, technical breadth, ethics, and general education.

UNIT REQUIREMENT

The minimum units allowed for HSSEAS students is between 185 and 190, depending on the program. The maximum allowed is 213 units.

After 213 quarter units, enrollment may not normally be continued in the school without special permission from the associate dean. This regulation does not apply to Departmental Scholars.

SCHOLARSHIP REQUIREMENT

Students must earn at least a C (2.0) grade-point average in all courses taken at any UC campus. In addition, at least a 2.0 grade-point average must be achieved in total upper division required courses and total upper division engineering courses. See a counselor in 6426 Boelter Hall for details.

Henry Samueli School of Engineering and Applied Science Structure of a Degree

University Requirements

1. Entry-Level Writing or English as a Second Language
2. American History and Institutions

School Requirements

1. Unit
2. Scholarship
3. Academic Residence
4. Writing Requirement
Writing I
Engineering Writing
5. Technical Breadth
6. Ethics Requirement
7. General Education
Foundations of Arts and Humanities
Foundations of Society and Culture
Foundations of Scientific Inquiry

Department Requirements

1. Preparation for the Major
2. The Major

Courses that do not satisfy specific University, school, or department requirements are referred to as electives and can be used to meet the minimum unit requirement for graduation.

ACADEMIC RESIDENCE REQUIREMENT

Of the last 48 units completed for the B.S. degree, 36 must be earned in residence in HSSEAS on this campus. No more than 16 of the 36 units may be completed in Summer Sessions at UCLA.

WRITING REQUIREMENT

Students must complete the University's Entry-Level Writing or English as a Second Language (ESL) requirement prior to completing the school writing requirement.

Students admitted to the school are required to complete a two-term writing requirement—Writing I and engineering writing. Both courses must be taken for letter grades, and students must receive grades of C or better (C– grades are not acceptable).

Writing I. The Writing I requirement must be satisfied by completing English Composition 3 or 3H with a grade of C or better (C– or a Passed grade is not acceptable) by the end of the second year of enrollment.

The Writing I requirement may also be satisfied by scoring 4 or 5 on one of the College Board Advanced Placement Tests in English or a combination of a score of 720 or higher on the SAT Reasoning Test Writing Section and superior performance on the English Composition 3 Proficiency Examination.

Students whose native language is not English may satisfy the Writing I requirement by completing English as a Second Language 36 with a grade of C or better (C– or a Passed grade is not acceptable). Admission into the course is determined by completion of English as a Second Language 35 with a passing grade or proficiency demonstrated on the English as a Second Language Placement Examination (ESLPE).

Engineering Writing. The engineering writing requirement is satisfied by selecting one approved engineering writing (EW) course from the HSSEAS writing course list or by selecting one approved Writing II (W) course. The course must be completed with a grade of C or better (C– or a Passed grade is not acceptable). Writing courses are listed in the *Schedule of Classes* at <http://www.registrar.ucla.edu/soc/writing.htm>.

Writing courses also approved for general education credit may be applied toward the relevant general education foundational area.

TECHNICAL BREADTH REQUIREMENT

The technical breadth requirement consists of a set of three courses providing sufficient breadth outside the student's core program. A list of HSSEAS Faculty Executive Committee-approved technical breadth requirement courses is available in the Office of Academic and Student Affairs, and deviations from that list are subject to approval by the associate dean for Academic and Student Affairs. None of the technical breadth requirement courses selected by students can be used to satisfy other major course requirements.

ETHICS REQUIREMENT

The ethics and professionalism requirement is satisfied by completing one course from Engineering 183EW

or 185EW with a grade of C or better (C– or a Passed grade is not acceptable). The course may be applied toward the engineering writing requirement.

GENERAL EDUCATION REQUIREMENTS

General education (GE) is more than a checklist of required courses. It is a program of study that (1) reveals to students the ways that research scholars in the arts, humanities, social sciences, and natural sciences create and evaluate new knowledge, (2) introduces students to the important ideas and themes of human cultures, (3) fosters appreciation for the many perspectives and the diverse voices that may be heard in a democratic society, and (4) develops the intellectual skills that give students the dexterity they need to function in a rapidly changing world.

This entails the ability to make critical and logical assessments of information, both traditional and digital; deliver reasoned and persuasive arguments; and identify, acquire, and use the knowledge necessary to solve problems.

Students may take one GE course per term on a Passed/Not Passed basis if they are in good academic standing and are enrolled in at least three and one-half courses (14 units) for the term. For details on P/NP grading, see Grading in the Academic Policies section or consult the Office of Academic and Student Affairs.

GE courses used to satisfy the engineering writing and/or ethics requirements must be taken for a letter grade.

Requirements for Students Who Entered Fall Quarter 2005 and Thereafter

FOUNDATIONS OF KNOWLEDGE

General education courses are grouped into three foundational areas: Foundations of the Arts and Humanities, Foundations of Society and Culture, and Foundations of Scientific Inquiry.

Five courses (24 units minimum) are required. Engineering writing and ethics requirement courses also approved for GE credit may be applied toward the relevant GE foundational areas.

Students must meet with a counselor in the Office of Academic and Student Affairs to determine the applicability of GE Cluster courses toward the engineering writing or GE requirements.

Courses listed in more than one category can fulfill GE requirements in only one of the cross-listed categories.

Foundations of the Arts and Humanities. Two 5-unit courses selected from two different subgroups:

Literary and Cultural Analysis
Philosophical and Linguistic Analysis
Visual and Performance Arts Analysis and Practice

The aim of courses in this area is to provide perspectives and intellectual skills necessary to comprehend and think critically about our situation in the world as human beings. In particular, the courses provide the basic means to appreciate and evaluate the ongoing efforts of humans to explain, translate, and transform their diverse experiences of the world through such media as language, literature, philosophical systems, images, sounds, and performances. The courses introduce students to the historical development and fundamental intellectual and ethical issues associated with

the arts and humanities and may also investigate the complex relations between artistic and humanistic expression and other facets of society and culture.

Foundations of Society and Culture. Two 5-unit courses, one from each subgroup:

Historical Analysis
Social Analysis

The aim of courses in this area is to introduce students to the ways in which humans organize, structure, rationalize, and govern their diverse societies and cultures over time. The courses focus on a particular historical question, societal problem, or topic of political and economic concern in an effort to demonstrate how issues are objectified for study, how data is collected and analyzed, and how new understandings of social phenomena are achieved and evaluated.

Foundations of Scientific Inquiry. One course (4 units minimum) from the Life Sciences subgroup or one course from Biomedical Engineering CM145/Chemical Engineering CM145, Chemistry and Biochemistry 153A, or Civil and Environmental Engineering M166/Environmental Health Sciences M166:

Life Sciences

This requirement is automatically satisfied for Bioengineering majors, Chemical Engineering majors, and the biomedical engineering option of the Electrical Engineering major. The requirement may be satisfied for Civil Engineering majors if students select an approved major field elective that is also a course approved under Foundations of Scientific Inquiry.

The aim of courses in this area is to ensure that students gain a fundamental understanding of how scientists formulate and answer questions about the operation of both the physical and biological world. The courses also deal with some of the most important issues, developments, and methodologies in contem-

porary science, addressing such topics as the origin of the universe, environmental degradation, and the decoding of the human genome. Through lectures, laboratory experiences, writing, and intensive discussions, students consider the important roles played by the laws of physics and chemistry in society, biology, Earth and environmental sciences, and astrophysics and cosmology.

Foundations Course Lists. Creating and maintaining a general education curriculum is a dynamic process; consequently, courses are frequently added to the list. For the most current list of approved courses that satisfy the Foundations of Knowledge GE plan, consult an academic counselor or see <http://www.registrar.ucla.edu/ge/>.

Requirements for Students Who Entered Prior to Fall Quarter 2005

For the approved list of courses, see <http://www.seasoasa.ucla.edu/ge.html>.

DEPARTMENT REQUIREMENTS

Henry Samuelli School of Engineering and Applied Science departments generally set two types of requirements that must be satisfied for the award of the degree: (1) Preparation for the Major (lower division courses) and (2) the Major (upper division courses). Preparation for the Major courses should be completed before beginning upper division work.

PREPARATION FOR THE MAJOR

A major requires completion of a set of courses known as Preparation for the Major. Each department sets its own Preparation for the Major requirements; see the Curricula and Courses section of this catalog.

THE MAJOR

Students must complete their major with a scholarship average of at least a 2.0 (C) in all courses in order to remain in the major. Each course in the major department must be taken for a letter grade. See the Curricula and Courses section of this catalog for details on each major.

POLICIES AND REGULATIONS

Degree requirements are subject to policies and regulations, including the following:

STUDENT RESPONSIBILITY

Students should take advantage of academic support resources, but they are ultimately responsible for keeping informed of and complying with the rules, regulations, and policies affecting their academic standing.

STUDY LIST

The Study List is a record of classes that a student is taking for a particular term. It is the student's responsibility to present a Study List that reflects satisfactory progress toward the degree. Study Lists or programs of study that do not comply with the standards set by the faculty may result in enforced withdrawal from the University or other academic action. Study Lists

Henry Samuelli School of Engineering and Applied Science General Education Requirements

Foundations of the Arts and Humanities

Literary and Cultural Analysis
Philosophical and Linguistic Analysis
Visual and Performance Arts Analysis
and Practice
..... 2 Courses
Each course must be from a different subgroup.
Total = 10 units minimum

Foundations of Society and Culture

Historical Analysis 1 Course
Social Analysis 1 Course
Total = 10 units minimum

Foundations of Scientific Inquiry

Life Sciences 1 Course
Total = 4 units minimum

Total GE 5 Courses/24 Units Minimum

Engineering writing requirement courses also approved for GE credit may be applied toward the relevant GE foundational areas.

require approval of the dean of the school or a designated representative.

Undergraduate students in the school are expected to enroll in at least 12 units each term. Students enrolling in less than 12 units must obtain approval by petition to the dean prior to enrollment in courses. The normal program is 16 units per term. Students may not enroll in more than 21 units per term unless an Excess Unit Petition is approved in advance by the dean.

MINIMUM PROGRESS

Full-time HSSEAS undergraduate students must complete a minimum of 36 units in three consecutive terms in which they are registered.

CREDIT LIMITATIONS

The following credit limitations apply to all undergraduate students enrolled in the school:

Advanced Placement Tests. Some portions of Advanced Placement (AP) Test credit are evaluated by corresponding UCLA course number. If students take the equivalent UCLA course, a deduction of UCLA unit credit is made prior to graduation. See the HSSEAS AP chart at <http://www.admissions.ucla.edu/Prospect/APCreditEN.htm>.

College Level Examination Program. Credit earned through the College Level Examination Program (CLEP) may not be applied toward the bachelor's degree.

Community College Unit Limit. After students have completed 105 quarter units (regardless of where the units are completed), they do not receive unit credit or subject credit for courses completed at a community college.

Foreign Language. No credit is granted toward the bachelor's degree for college foreign language courses equivalent to quarter levels one and two if the equivalent of level two of the same language was completed with satisfactory grades in high school.

DOUBLE MAJORS

Students in good academic standing may be permitted to have a double major consisting of a major within HSSEAS and a major outside the school (e.g., Electrical Engineering and Economics). Students are not permitted to have a double major within the school (e.g., Chemical Engineering and Civil Engineering). Contact the Office of Academic and Student Affairs for details.

COUNSELING SERVICES

New undergraduate students must have their course of study approved by an academic counselor. After the first term, curricular and career advising is accomplished on a formal basis. Students are assigned a faculty adviser in their particular specialization in their freshman year.

In addition, undergraduate students are assigned, by major, to an academic counselor in the Office of Academic and Student Affairs who provides them with advice regarding general requirements for the degrees and University and school regulations and procedures.

It is the students' responsibility to periodically meet with their academic counselor in the Office of Academic and Student Affairs, as well as with their faculty adviser, to discuss curriculum requirements, programs of study, and any other academic matters of concern.

Students normally follow the curriculum in effect when they enter the school. California community college transfer students may also select the curriculum in the catalog in effect at the time they began their community college work in an engineering program, providing attendance has been continuous since that time.

Undergraduate students following a catalog year prior to 2005-06 and beginning their upper division major field coursework are advised to meet with their academic counselor in the Office of Academic and Student Affairs, 6426 Boelter Hall, to review and update the Academic Program Proposal. Students following the 2005-06 catalog year and thereafter use the program called Degree Audit Reporting Systems (DARS) and should contact their academic counselor in 6426 Boelter Hall with any questions.

Academic counselors in the Office of Academic and Student Affairs assist students with University procedures and answer questions related to general requirements.

HONORS

HSSEAS undergraduate students who achieve scholastic distinction may qualify for the following honors and programs:

DEAN'S HONORS LIST

Students following the engineering curricula are eligible to be named to the Dean's Honors List each term. Minimum requirements are a course load of at least 15 units (12 units of letter grade) with a grade-point average equal to or greater than 3.7. Students are not eligible for the Dean's Honors List if they receive an Incomplete (I) or Not Passed (NP) grade or repeat a course. Only courses applicable to an undergraduate degree are considered toward eligibility for Dean's Honors.

LATIN HONORS

Students who have achieved scholastic distinction may be awarded the bachelor's degree with honors. To be eligible, students must have completed 90 or more units for a letter grade at the University of California and must have attained a cumulative grade-point average at graduation which places them in the top five percent of the school (GPA of 3.871 or better) for *summa cum laude*, next five percent (GPA of 3.771 or better) for *magna cum laude*, and the next 10 percent (GPA of 3.624 or better) for *cum laude*. The minimum GPAs required are subject to change on an annual basis. Required GPAs in effect in the graduating year determine student eligibility.

Based on grades achieved in upper division courses, engineering students must have a 3.871 grade-point average for *summa cum laude*, a 3.771 for *magna cum laude*, and a 3.624 for *cum laude*. For all designations of honors, students must have a minimum 3.25 GPA in their major field courses. To be eligible for an award,

students should have completed at least 80 upper division units at the University of California.

TAU BETA PI

The UCLA chapter of Tau Beta Pi, the national engineering honor society, encourages high scholarship, provides volunteer tutors, and offers many services and programs to foster a spirit of liberal culture in engineering colleges. See <http://tbp.seas.ucla.edu>.

DEPARTMENTAL SCHOLAR PROGRAM

Exceptionally promising juniors or seniors may be nominated as Departmental Scholars to pursue bachelor's and master's degree programs simultaneously. Minimum qualifications include the completion of 24 courses (96 quarter units) at UCLA, or the equivalent at a similar institution, the current minimum grade-point average required for honors at graduation, and the requirements in preparation for the major. To obtain both the bachelor's and master's degrees, Departmental Scholars fulfill the requirements for each program. Students may not use any one course to fulfill requirements for both degrees.

For details, consult the Office of Academic and Student Affairs in 6426 Boelter Hall well in advance of application dates for admission to graduate standing.

SPECIAL PROGRAMS

EXTRACURRICULAR ACTIVITIES

Students are encouraged to participate in UCLA extracurricular activities, especially those relevant to engineering, such as the student engineering society (the Engineering Society, University of California), student publications, and programs of the technical and professional engineering societies in the Los Angeles area.

The student body takes an active part in shaping policies of the school through elected student representatives on the school's Faculty Executive Committee.

WOMEN IN ENGINEERING

Among HSSEAS students, women make up approximately 19 percent of the undergraduate and 18 percent of the graduate enrollment. Today's opportunities for women in engineering are excellent, as both employers and educators try to change the image of engineering as a "males only" field. Women engineers are in great demand in all fields of engineering.

The Society of Women Engineers (SWE), recognizing that women in engineering are still a minority, has established a UCLA student chapter that sponsors field trips and engineering-related speakers (often professional women) to introduce the various options available to women engineers. The UCLA chapter of SWE, in conjunction with other Los Angeles schools, also publishes an annual résumé book to aid women students in finding jobs and presents a career day for women high school students. See <http://www.seas.ucla.edu/swe/>.

CONTINUING EDUCATION

Continuing education in engineering is developed and administered by the UCLA Extension (UNEX)

Department of Engineering, Information Systems, and Technical Management in close cooperation with HSSEAS. The department offers evening classes, short courses, certificate programs, special events, and education and training at the workplace. The office (540 UNEX, 10995 Le Conte Avenue) is open Monday through Friday. Call (310) 825-4100 for information systems and engineering programs, (310) 825-3344 for short course programs, (310) 206-1548 for technical management classes, and (310) 825-3858 for the Technical Management Program. See <http://www.uclaextension.edu>.

GRADUATE ADMISSION

In addition to meeting the requirements of the Graduate Division, applicants to the HSSEAS graduate programs are required to take the General Test of the Graduate Record Examination (GRE). Specific information about the GRE may be obtained from the department of interest.

Students entering the Engineer/Ph.D. program normally are expected to have completed the requirements for the master's degree with at least a 3.25 grade-point average and to have demonstrated creative ability. Normally the M.S. degree is required for admission to the Ph.D. program. Exceptional students, however, can be admitted to the Ph.D. program without having an M.S. degree.

For information on the proficiency in English requirements for international graduate students, see Graduate Admission in the Graduate Study section of this catalog.

To submit a graduate application, see <http://www.seas.oasa.ucla.edu/admissions/graduate-admissions/>. From there connect to the site of the preferred department or program and go to the online graduate application.

GRADUATE DEGREE REQUIREMENTS

Graduate degree information is updated annually in *Program Requirements for UCLA Graduate Degrees* at <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>.

MASTER OF SCIENCE DEGREES

No lower division courses may be applied toward graduate degrees. In addition, the various departments generally do not allow, for graduate degree credit, courses required of their undergraduate students. Consult the departmental graduate affairs office for more information.

Individual departments within the school may impose certain restrictions on the applicability of other undergraduate courses toward graduate degrees. Consult with the graduate adviser on departmental requirements and restrictions.

Major Fields or Subdisciplines

The M.S. program focuses on one major field. The major fields and subdisciplines offered at the M.S. level in most cases parallel those listed below for the Ph.D. program. There are some differences (for example,

manufacturing engineering in the Department of Mechanical and Aerospace Engineering is offered only at the M.S. level). Contact the department concerned regarding possible differences between the M.S. and Ph.D. fields and subdisciplines. Students are free to propose to the school any other field of study, with the support of their adviser.

Course Requirements

A total of nine courses is required for the M.S. degrees, including a minimum of five graduate courses. (Some fields require more than five; obtain specific information from the department of interest.) A majority of the total formal course requirement and of the graduate course requirement must consist of courses in HSSEAS. In the thesis plan, seven of the nine courses must be formal courses, including at least four from the 200 series. The remaining two courses may be 598 courses involving work on the thesis. In the comprehensive examination plan, at least five of the nine courses must be in the 200 series; the remaining four courses may be either 200-series graduate or upper division undergraduate courses. No 500-series courses may be applied toward the comprehensive examination plan requirements.

Thesis Plan

The thesis must either describe some original piece of research that students have done, usually but not necessarily under the supervision of the thesis committee, or else provide a critical exposition of some topic in their major field of study. Students would normally start to plan the thesis at least one year before the award of the M.S. degree is expected. There is no examination under the thesis plan.

Comprehensive Examination Plan

The comprehensive examination, which is offered every term, is required in written form only. The comprehensive examining committee may conduct an oral query after review of the written examination. In case of failure, students may be reexamined once with the consent of their departmental graduate adviser.

CONCURRENT DEGREE PROGRAM

A concurrent degree program between HSSEAS and the John E. Anderson Graduate School of Management allows students to earn two master's degrees simultaneously: the M.B.A. and the M.S. in Computer Science. Contact the Office of Academic and Student Affairs for details.

MASTER OF SCIENCE IN ENGINEERING ONLINE DEGREE

The primary purpose of the Master of Science in Engineering online degree program is to enable employed engineers and computer scientists to augment their technical education beyond the Bachelor of Science degree and to enhance their value to the technical organizations in which they are employed. For further information, see <http://msengrol.seas.ucla.edu>.

MASTER OF ENGINEERING DEGREE

The Master of Engineering (M.Engr.) degree is granted to graduates of the Engineering Executive Pro-

gram, a two-year work-study program consisting of graduate-level professional courses in the management of technological enterprises. For details, write to the HSSEAS Office of Academic and Student Affairs, 6426 Boelter Hall, UCLA, Box 951601, Los Angeles, CA 90095-1601, (310) 825-2514.

ENGINEER DEGREE

HSSEAS offers an Engineer (Engr.) degree at a level equivalent to completion of preliminaries in the Ph.D. program. The Engineer degree represents considerable advanced training and competence in the engineering field but does not require the research effort involved in a Ph.D. dissertation.

Requirements for the Engineer degree are identical to those of the Ph.D. degree up to and including the oral preliminary examination, except that the Engineer degree is based on coursework. The minimum requirement is 15 (at least nine graduate) courses beyond the bachelor's degree, with at least six courses in the major field (minimum of four graduate courses) and at least three in each minor field (minimum of two graduate courses in each).

The Ph.D. and Engineer degree programs are administered interchangeably, so that a student in the Ph.D. program may exit with an Engineer degree or pick up the Engineer degree en route to the Ph.D. degree; similarly, a student in the Engineer degree program may continue to the Ph.D. after receiving the Engineer degree. The time spent in either of the two programs may also be applied toward the minimum residence requirement and time limitation for the other program.

PH.D. DEGREES

The Ph.D. programs prepare students for advanced study and research in the major areas of engineering and computer science. All candidates must fulfill the minimum requirements of the Graduate Division. Major and minor fields may have additional course and examination requirements. For further information, contact the individual departments.

Fields of Study

Established fields of study for the Ph.D. are listed below. With the support of an adviser, students may propose any other field of study to their department. Instructions on the definition of acceptable ad hoc fields and procedures for their approval are available in each department office.

Biomedical Engineering Interdepartmental Program.

Biomaterials, tissue engineering, and biomechanics; biomedical instrumentation; biomedical signal and image processing; biosystem science and engineering; medical imaging informatics; molecular and cellular bioengineering; neuroengineering

Chemical and Biomolecular Engineering Department.

Chemical engineering

Civil and Environmental Engineering Department.

Environmental engineering, geotechnical engineering, hydrology and water resources engineering, structures (structural mechanics and earthquake engineering)

Computer Science Department. Artificial intelligence, computational systems biology, computer network sys-

tems, computer science theory, computer system architecture, graphics and vision, information and data management, software systems

Electrical Engineering Department. Circuits and embedded systems, physical and wave electronics, signals and systems

Materials Science and Engineering Department. Ceramics and ceramic processing, electronic and optical materials, structural materials

Mechanical and Aerospace Engineering Department. Applied mathematics (established minor field only), applied plasma physics (minor field only), dynamics, fluid mechanics, heat and mass transfer, manufacturing and design, nanoelectromechanical/microelectromechanical systems (NEMS/MEMS), structural and solid mechanics, systems and control

GRADUATE CERTIFICATE OF SPECIALIZATION

A Certificate of Specialization is available in all areas, except computer science, offered by HSSEAS. Requirements for admission are the same as for the M.S. degree.

Each graduate certificate program consists of five 100- or 200-series courses, at least two of which must be at the graduate level. No work completed for any previously awarded degree or credential may be applied toward the certificate. Successful completion of a certificate program requires an overall minimum B average in all courses applicable to the certificate. In addition, graduate certificate candidates are required to maintain a minimum B average in 200-series courses used in the certificate program. A minimum of three terms of academic residence is required. The time limitation for completing the requirements of a certificate program is two calendar years. Details regarding the certificate programs may be obtained from each department office.

Courses completed in HSSEAS for a Certificate of Specialization may subsequently be applied toward master's and/or doctoral degrees.

JOHN E. ANDERSON GRADUATE SCHOOL OF MANAGEMENT

Judy D. Olian, Dean

UCLA
F407 Mullin Management Commons
Box 951481
Los Angeles, CA 90095-1481

(310) 825-7982
fax: (310) 206-2002
<http://www.anderson.ucla.edu>

In today's rapidly changing global marketplace, it is essential that professional managers be conversant with the latest concepts and principles of management. At the UCLA John E. Anderson Graduate School of Management, which is consistently ranked among the best such schools in the nation, students prepare to become first-rate managers with both specialized skills

and a broad understanding of the general economic, business, and managerial environment. This background enables them to become effective and efficient directors of organizations and people whether they are in the private, public, or not-for-profit sector.

Specifically, the Anderson School offers the business community a wide range of higher education programs that provide state-of-the-art information in a variety of fields. Through its faculty, the school advances the art and science of management by engaging in fundamental and cutting-edge research in all fields of management and by educating scholars who can continue to create this new knowledge.

John E. Anderson Graduate School of Management students come from diverse professional and educational backgrounds and seek equally diverse personal and professional goals. Whether they pursue the professional M.B.A., the academic M.S., or a Ph.D. in Management, they graduate with a broad understanding of people and organizations and with a sound technical background in the economic and mathematical concepts of management planning and decision making.

The school offers a variety of programs leading to graduate degrees at the master's and doctoral levels. These include both an academic (M.S.) and professional (M.B.A.) master's, a Master of Financial Engineering (M.F.E.), as well as an Executive M.B.A. Program designed for working managers who are moving from specialized areas into general management and a three-year Fully Employed M.B.A. Program for emerging managers. The school also offers a part-time dual Executive M.B.A. degree with the National University of Singapore (NUS) Business School that prepares participants for top positions in organizations around the world. A Ph.D. in Management is also offered, as are a certificate Executive Program and research conferences and seminars for experienced managers.

The school also offers an undergraduate minor in Accounting and several undergraduate courses in management. Enrollment in these courses, although open to all University students who have completed the requisites, is limited. The school limits the number of courses taken by undergraduate students to 11.

DEGREES

The school offers the following degrees, in addition to an undergraduate minor in Accounting:

Master of Business Administration (M.B.A.)
Master of Financial Engineering (M.F.E.)
Master of Science (M.S.)
Doctor of Philosophy (Ph.D.)

Concurrent Degree Programs

The school offers 10 concurrent degree programs:

- Management M.B.A./Computer Science M.S.
- Management M.B.A./Dentistry D.D.S.
- Management M.B.A./Latin American Studies M.A.
- Management M.B.A./Law J.D.
- Management M.B.A./Library and Information Science M.L.I.S.
- Management M.B.A./Medicine M.D.
- Management M.B.A./Nursing M.S.N.

Management M.B.A./Public Health M.P.H.
Management M.B.A./Public Policy M.P.P.
Management M.B.A./Urban Planning M.U.R.P.

RESEARCH CENTERS AND PROGRAMS

Interdisciplinary research centers provide valuable resources that support school programs. See <http://www.anderson.ucla.edu/x24196.xml>.

CENTER FOR INTERNATIONAL BUSINESS EDUCATION AND RESEARCH

The Center for International Business Education and Research (CIBER) is dedicated to enhancing the teaching and understanding of issues related to the global marketplace. The center actively increases international business research across the campus through the direct funding of faculty research travel, graduate student research assistantships, and academic conferences. See <http://www.anderson.ucla.edu/ciber.xml>.

CENTER FOR MANAGEMENT OF ENTERPRISE IN MEDIA, ENTERTAINMENT, AND SPORTS

The Center for Management of Enterprise in Media, Entertainment, and Sports (MEMES) sponsors research, industry events, and courses to bring together industry representatives, students, and researchers to develop new ways for entertainment, sports, and media companies to manage and thrive in the face of transforming entertainment, sports, and media business models. See <http://www.anderson.ucla.edu/emmi.xml>.

HAROLD AND PAULINE PRICE CENTER FOR ENTREPRENEURIAL STUDIES

The Harold and Pauline Price Center for Entrepreneurial Studies provides academic and extracurricular activities that prepare M.B.A. candidates for the challenge of business management in entrepreneurial environments. These efforts include teaching and curriculum development, student activities, and scholarly research. The interdisciplinary curriculum draws on faculty expertise in many areas. See <http://www.anderson.ucla.edu/price.xml>.

HUMAN RESOURCES ROUND TABLE

The Human Resources Round Table (HARRT) is affiliated with the Anderson School and the UCLA Institute for Research on Labor and Employment. The program's mission is to enhance the profession of human resource management by linking the academic and practitioner human resource management communities. See <http://www.harrt.ucla.edu>.

INFORMATION SYSTEMS RESEARCH PROGRAM

The Information Systems Research Program (ISRP) was established to recognize the importance of maintaining close ties between the activities of practicing professionals and the activities of academics in the information systems area, while at the same time raising money to support education and research activities in the information systems area. The senior managers

and technical professionals who belong to the Information Systems Associates participate in a number of activities to facilitate professional interchange and networking, such as the Information Systems Executive Leadership annual award dinner and the annual Information Systems Associates Symposium. See <http://www.anderson.ucla.edu/x1049.xml>.

LAURENCE D. AND LORI W. FINK CENTER FOR FINANCE AND INVESTMENTS

The Fink Center for Finance and Investments sponsors research, teaching, and the application of financial knowledge in the global corporate and investment communities. The center takes a leadership role in recruiting and retaining outstanding faculty members and scholars. It also supports promising students in their efforts to gain a deeper understanding of the issues and challenges in the field of finance. See <http://www.anderson.ucla.edu/finkcenter.xml>.

OFFICE OF EXECUTIVE EDUCATION PROGRAMS

Lifelong learning plays a critical role in the success of today's business leaders. The Anderson School's Office of Executive Education Programs offers more than 40 innovative open enrollment and customized programs that address complex and rapidly changing business issues. The Executive Program covers such diverse areas as strategic planning, organizational design, and competitive positioning. See <http://www.anderson.ucla.edu/x24218.xml>.



The Anderson School of Management prepares students to become first-rate managers with specialized skills and a broad understanding of the general economic, business, and managerial environment.

RICHARD S. ZIMAN CENTER FOR REAL ESTATE

The Richard S. Ziman Center for Real Estate is a joint center of the Anderson School and the UCLA School of Law. It is charged with creating and administering UCLA's activities surrounding real estate research, education, and professional development. The objectives are to (1) advance the quality of real estate research to a level comparable with financial economics, (2) train highly skilled professionals who use advanced scientific tools for designing new products, managing risk, and raising returns to real estate investments, and (3) undertake activities that bridge the gap between real estate research and practice. See <http://www.anderson.ucla.edu/ziman.xml>.

RIORDAN PROGRAMS

The Riordan Programs were established by the Riordan Foundation to address the demand for trained managers who can provide vision and leadership in culturally diverse communities. The programs' success results from the collaborative efforts of Anderson School faculty members, students, and alumni, and corporate leaders throughout the community. Together these individuals encourage underrepresented

students to pursue higher education in management and to become future leaders in business and society. See <http://www.anderson.ucla.edu/x257.xml>.

UCLA ANDERSON FORECAST

Using large-scale econometric models, the UCLA Anderson Forecast makes quarterly and long-term forecasts of the national and California economies, with focus on unemployment and employment by three-digit SIC code. Results of the forecasts are announced at conferences attended by members of the media and leaders in business and government. See <http://uclaforecast.com>.

SCHOOL OF THE ARTS AND ARCHITECTURE

Christopher Waterman, Dean

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<http://www.arts.ucla.edu>

The School of the Arts and Architecture at UCLA plays a vital role in the cultural and artistic life of the campus and community. Courses and degree programs in six departments (Architecture and Urban Design, Art, Design | Media Arts, Ethnomusicology, Music, and World Arts and Cultures) provide students with unparalleled opportunities to learn from faculty members who rank among the most innovative artists,

designers, musicians, choreographers, architects, and arts scholars of our time.

Combining opportunities for the hands-on study of creative practice with the academic foundation of the liberal arts, the school offers students the chance to develop an integrated and encompassing understanding of human creativ-

ity, the arts, and architecture. The mission is to educate, empower, and inspire the next generation of citizens to serve as cultural and artistic leaders of the twenty-first century.

Also under the School of the Arts and Architecture umbrella is an impressive array of public arts units, including UCLA Live, one of the largest and most diverse performing arts presenters in the nation, and two world-class museums—the UCLA Hammer Museum which focuses on contemporary and emerging artists and the Fowler Museum at UCLA which focuses on the traditional and contemporary arts of Africa, the Americas, Asia, and Oceania.

The school also includes six interdisciplinary research centers—the Art | Global Health Center, Art | Sci Center, Center for Intercultural Performance, CityLab, Experiential Technologies Center, and Grunwald Center for the Graphic Arts—and the renowned Murphy Sculpture Garden. All of these programs offer students the opportunity to broaden and deepen their experience of the arts and architecture while at UCLA.

In addition to providing a rich and diverse environment on campus, the school offers students the opportunity to participate in community outreach programs designed around concerts, exhibitions, symposia, and dance productions presented in cooperation with groups throughout the greater Los Angeles area.

DEPARTMENTS AND PROGRAMS

The six departments of the school are integral to the rich and varied cultural life of the campus. The Department of Architecture and Urban Design provides students with a unique opportunity to study buildings, cities, and their interdependence in one of the most structurally and ethnically diverse cities in the world. Students in the Department of Art learn to understand the broad panorama of the visual arts emphasizing experimentation. The Department of Design | Media Arts focuses on electronic and digital imagery in visual communication design. Students in the Department of Ethnomusicology study the performance and context of music-making from a global perspective, including a concentration in jazz studies, and the Department of Music offers concentrations in composition, music education, and performance. The Department of World Arts and Cultures offers an innovative curriculum focused on the interdisciplinary and intercultural investigation of performance, the arts, and dance, and on establishing connections between cultural theory and artistic practice.

Information regarding academic programs is available from the Office of Enrollment Management and Outreach, 8260 Broad Art Center, UCLA, Box 951427, Los Angeles, CA 90095-1427, <http://www.arts.ucla.edu>, (310) 825-8981.

Students interested in obtaining instructional credentials for California elementary and secondary schools should consult the Department of Education, 1009 Moore Hall, (310) 825-8328.

DEGREES

The school offers the following degrees:

Architectural Studies (B.A.)
Architecture (M.Arch. I, M.Arch. II, M.A., Ph.D.)
Art (B.A., M.A., M.F.A.)
Culture and Performance (M.A., Ph.D.)
Dance (M.F.A.)
Design | Media Arts (B.A., M.F.A.)
Ethnomusicology (B.A., M.A., C.Phil., Ph.D.)
Individual Field (B.A.)
Music (B.A., M.A., M.M., C.Phil., D.M.A., Ph.D.)
World Arts and Cultures (B.A.)

New students are not being admitted to the M.A. in Art (critical and curatorial studies specialization) at this time.

The School of the Arts and Architecture balances practice and theory built on a liberal arts foundation, which assures the understanding and appreciation of both interdependence and integration of creativity, performance, and research.



UNDERGRADUATE ADMISSION

In addition to the University of California undergraduate application, departments in the School of the Arts and Architecture require auditions, portfolios, or evidence of creativity. Information regarding departmental requirements is available on each department website; see <http://www.arts.ucla.edu> (click on Departments). The annual deadline date for applications is November 30 for admission in the following Fall Quarter. After the UC application has been filed, applicants must submit supplemental application material and should consult the individual department website for details.

UNDERGRADUATE DEGREE REQUIREMENTS

School of the Arts and Architecture students must meet three types of requirements for the Bachelor of Arts degree:

1. University requirements
2. School requirements
3. Department requirements

UNIVERSITY REQUIREMENTS

The University of California has two requirements that undergraduate students must satisfy in order to graduate: (1) Entry-Level Writing or English as a Second Language and (2) American History and Institutions. See Degree Requirements in the Undergraduate Study section for details.

School of the Arts and Architecture students enrolled in English as a Second Language 33A, 33B, 33C, 35 must take each course for a letter grade.

SCHOOL REQUIREMENTS

The School of the Arts and Architecture has nine requirements that must be satisfied for the award of the degree: unit, scholarship, academic residence, writing, quantitative reasoning, foreign language, upper division nonmajor courses, diversity, and general education.

UNIT REQUIREMENT

Students must complete for credit, with a passing grade, no less than 180 units and no more than 216 units, of which at least 64 units must be upper division courses (numbered 100 through 199). Credit for upper division tutorials numbered 195 through 199 is limited to a maximum of 8 units in a single term and a maximum of 32 units total for a letter grade. Each major may have limitations on the number of upper division tutorials and/or units that may be applied toward degree requirements.

SCHOLARSHIP REQUIREMENT

A 2.0 (C) average is required in all work attempted at the University of California, exclusive of courses in UCLA Extension and those graded Passed/Not Passed. A 2.0 (C) average is also required in all upper division courses in the major taken at the University, as well as

in all courses applied toward the general education and University requirements.

ACADEMIC RESIDENCE REQUIREMENT

Students are in residence while enrolled and attending classes at UCLA as a major in the School of the Arts and Architecture. Of the last 45 units completed for the bachelor's degree, 35 must be earned in residence in the School of the Arts and Architecture. No more than 18 of the 35 units may be completed in UCLA Summer Sessions.

Courses in UCLA Extension (either class or correspondence) may not be applied toward any part of the residence requirements.

WRITING REQUIREMENT

Students must complete the University's Entry-Level Writing or English as a Second Language (ESL) requirement prior to completing the school writing requirement.

Students admitted to the school are required to complete a two-term writing requirement—Writing I and Writing II. The courses must be taken for letter grades, and students must receive grades of C or better (C- grades are not acceptable).

Writing I. The Writing I requirement must be satisfied within the first three terms of enrollment by completing English Composition 3 or 3H with a grade of C or better (C- or a Passed grade is not acceptable).

**School of the Arts and Architecture
Structure of a Degree**

University Requirements

1. Entry-Level Writing or English as a Second Language
2. American History and Institutions

School Requirements

1. Unit
2. Scholarship
3. Academic Residence
4. Writing Requirement
 - Writing I
 - Writing II
5. Quantitative Reasoning
6. Foreign Language
7. Upper Division Nonmajor Courses
8. Diversity
9. General Education
 - Foundations of Arts and Humanities
 - Foundations of Society and Culture
 - Foundations of Scientific Inquiry

Department Requirements

1. Preparation for the Major
2. The Major

Courses that do not satisfy specific University, school, or department requirements are referred to as electives and can be used to meet the minimum unit requirement for graduation.

The Writing I requirement may also be satisfied by scoring 4 or 5 on one of the College Board Advanced Placement Tests in English or a combination of a score of 720 or higher on the SAT Reasoning Test Writing Section and superior performance on the English Composition 3 Proficiency Examination.

Students whose native language is not English may satisfy the Writing I requirement by completing English as a Second Language 36 with a grade of C or better (C– or a Passed grade is not acceptable). Admission into the course is determined by completion of English as a Second Language 35 with a passing grade or proficiency demonstrated on the English as a Second Language Placement Examination (ESLPE).

Writing II. The Writing II requirement must be satisfied within the first six terms of enrollment by completing one course from a faculty-approved list of Writing II courses published in the *Schedule of Classes* at <http://www.registrar.ucla.edu/soc/writing.htm> and available in the Student Services Office. The course must be completed with a grade of C or better (C– or a Passed grade is not acceptable).

A Writing II course also approved for general education may be applied toward the relevant general education foundational area.

QUANTITATIVE REASONING REQUIREMENT

In the School of the Arts and Architecture, students must demonstrate basic skills in quantitative reasoning. The requirement may be satisfied by completing one approved UCLA course (see list below) for a letter grade of C or better or Passed (C– or a Not Passed grade is not acceptable).

The quantitative reasoning requirement may also be satisfied by achieving an SAT Reasoning Test Mathematics Section score of 600 or higher or an SAT Subject Test in Mathematics score of 550 or higher.

Approved courses include Biostatistics 100A, 100B, Mathematics 2 (or any higher numbered course except 19, 71SL, 72SL, 89, 89HC, 98XA, 98XB, 99, 103A, 103B, 103C, 105A, 105B, 105C, 189, 189HC, 195, 197, 199), Philosophy 31, Political Science 6, 6R, Program in Computing 10A, 10B, 10C, Statistics 10, 10H, 11, 12, 13, 14.

FOREIGN LANGUAGE REQUIREMENT

Students may meet the foreign language requirement by (1) scoring 3, 4, or 5 on the College Board Advanced Placement (AP) foreign language examination in Chinese, French, German, Italian, Japanese, or Spanish, or scoring 4 or 5 on the AP foreign language examination in Latin, (2) presenting a UCLA foreign language proficiency examination score indicating competency through level three, or (3) completing one college-level foreign language course equivalent to level three or above at UCLA with a grade of Passed or C or better. The foreign language requirement must be completed within the first six terms of enrollment.

International students may petition to use an advanced course in their native language for this requirement. Students whose entire secondary education has been completed in a language other than English may petition to be exempt from the foreign language requirement.

UPPER DIVISION NONMAJOR REQUIREMENT

Students are required to complete a minimum of 12 units of upper division (100-level) nonmajor courses. Graduate (200-level) courses may not be applied toward this requirement.

DIVERSITY REQUIREMENT

The diversity requirement is predicated on the notion that students in the arts must be trained to understand the local, national, and global realities in which they make, understand, and interpret art. Those realities include the multicultural, transnational, and global nature of contemporary society. The requirement may be satisfied by taking courses in any of three parts of the students' overall program: (1) general education courses, (2) courses in the major, or (3) upper division elective courses. As such, students are not required to complete an additional course to satisfy the diversity requirement. Courses satisfying this requirement consider intergroup dynamics along with such social dimensions as race, ethnicity, gender, socioeconomic background, religion, sexual orientation, age, and disability and are relevant to the understanding of these dynamics in contemporary society and culture in the U.S. and around the world.

GENERAL EDUCATION REQUIREMENTS

General education (GE) is more than a checklist of required courses. It is a program of study that (1) reveals to students the ways that research scholars in the arts, humanities, social sciences, and natural sciences create and evaluate new knowledge, (2) introduces students to the important ideas and themes of human cultures, (3) fosters appreciation for the many perspectives and the diverse voices that may be heard in a democratic society, and (4) develops the intellec-

School of the Arts and Architecture General Education Requirements

Foundations of the Arts and Humanities

Literary and Cultural Analysis	1 Course
Philosophical and Linguistic Analysis.	1 Course
Visual and Performance Arts Analysis and Practice	1 Course
Total = 15 units minimum	

Foundations of Society and Culture

Historical Analysis	1 Course
Social Analysis	1 Course
Third course from either subgroup	1 Course
Total = 15 units minimum	

Foundations of Scientific Inquiry

Life Sciences/Physical Sciences	2 Courses
Two courses from either subgroup. If both courses are selected from the same subgroup, they must be from different departments.	
Total = 8 units minimum	

Total GE. 8 Courses/38 Units Minimum

A Writing II course also approved for general education may be applied toward the relevant general education foundational area.

tual skills that give students the dexterity they need to function in a rapidly changing world.

This entails the ability to make critical and logical assessments of information, both traditional and digital; deliver reasoned and persuasive arguments; and identify, acquire, and use the knowledge necessary to solve problems.

FOUNDATIONS OF KNOWLEDGE

General education courses are grouped into three foundational areas: Foundations of the Arts and Humanities, Foundations of Society and Culture, and Foundations of Scientific Inquiry.

Eight courses (38 units minimum) are required. A Writing II course also approved for general education may be applied toward the relevant general education foundational area.

Students who complete a yearlong GE Cluster series fulfill the Writing II requirement and complete nearly a third of their general education requirements. Students who do not complete the yearlong GE Cluster series must meet with a counselor in the Student Services Office to determine applicable GE credit.

Courses listed in more than one category can fulfill GE requirements in only one of the cross-listed categories.

Foundations of the Arts and Humanities. Three 5-unit courses, one from each subgroup. Courses required to satisfy the major or other courses taken in the major department may not be used to satisfy this GE requirement:

Literary and Cultural Analysis
Philosophical and Linguistic Analysis
Visual and Performance Arts Analysis and Practice

The aim of courses in this area is to provide perspectives and intellectual skills necessary to comprehend and think critically about our situation in the world as human beings. In particular, the courses provide the basic means to appreciate and evaluate the ongoing efforts of humans to explain, translate, and transform their diverse experiences of the world through such media as language, literature, philosophical systems, images, sounds, and performances. The courses introduce students to the historical development and fundamental intellectual and ethical issues associated with the arts and humanities and may also investigate the complex relations between artistic and humanistic expression and other facets of society and culture.

Foundations of Society and Culture. Three 5-unit courses, one from each subgroup and a third course from either subgroup:

Historical Analysis
Social Analysis

The aim of courses in this area is to introduce students to the ways in which humans organize, structure, rationalize, and govern their diverse societies and cultures over time. The courses focus on a particular historical question, societal problem, or topic of political and economic concern in an effort to demonstrate how issues are objectified for study, how data is collected and analyzed, and how new understandings of social phenomena are achieved and evaluated.

Foundations of Scientific Inquiry. Two courses from either subgroup. If both courses are selected from the

same subgroup, they must be from different departments:

Life Sciences
Physical Sciences

The aim of courses in this area is to ensure that students gain a fundamental understanding of how scientists formulate and answer questions about the operation of both the physical and biological world. The courses also deal with some of the most important issues, developments, and methodologies in contemporary science, addressing such topics as the origin of the universe, environmental degradation, and the decoding of the human genome. Through lectures, laboratory experiences, writing, and intensive discussions, students consider the important roles played by the laws of physics and chemistry in society, biology, Earth and environmental sciences, and astrophysics and cosmology.

Foundations Course Lists. Creating and maintaining a general education curriculum is a dynamic process; consequently, courses are frequently added to the list. For the most current list of approved courses that satisfy the Foundations of Knowledge GE plan, consult an academic counselor or see <http://www.registrar.ucla.edu/ge/>.

Reciprocity with Other UC Campuses

Students who transfer to UCLA from other UC campuses and have met all GE requirements prior to enrolling at UCLA are not required to complete the School of the Arts and Architecture GE requirements. Written verification from the dean at the other UC campus is required. Verification letters should be sent to the Student Services Office, School of the Arts and Architecture, 2200 Broad Art Center, UCLA, Box 951620, Los Angeles, CA 90095-1620.

Intersegmental General Education Transfer Curriculum

Transfer students from California community colleges have the option to fulfill UCLA lower division GE requirements by completing the Intersegmental General Education Transfer Curriculum (IGETC) prior to transfer. The curriculum consists of a series of subject areas and types of courses which have been agreed on by the University of California and the California community colleges. Although GE or transfer core courses are degree requirements rather than admission requirements, students are advised to fulfill them prior to transfer. The IGETC significantly eases the transfer process, as all UCLA GE requirements are fulfilled when students complete the IGETC courses. Students who select the IGETC must complete it entirely before enrolling at UCLA. Otherwise, they must fulfill the School of the Arts and Architecture GE requirements.

DEPARTMENT REQUIREMENTS

School of the Arts and Architecture departments generally set two types of requirements that must be satisfied for the award of the degree: (1) Preparation for the Major (lower division courses) and (2) the Major (upper division courses). Preparation for the Major courses should be completed before beginning upper division work.

PREPARATION FOR THE MAJOR

A major requires completion of a set of courses known as Preparation for the Major. Each department sets its own Preparation for the Major requirements; see the Curricula and Courses section of this catalog.

THE MAJOR

A major is composed of no less than 56 units, including at least 36 units of upper division courses.

Students must complete their major with a scholarship average of at least a 2.0 (C) in all courses in order to remain in the major. Each course in the major department must be taken for a letter grade.

As changes in major requirements occur, students are expected to satisfy the new requirements insofar as possible. Hardship cases should be discussed with the department adviser, and petitions for adjustment should be submitted to the dean of the school when necessary.

Any department offering a major in the School of the Arts and Architecture may require a general final examination.

Individual Majors. Highly motivated students who believe that no single major accommodates their specific interests and goals may propose designing their own major. Proposals are prepared with faculty guidance and sponsorship and must explain the intent concerning the anticipated program of study and reasons why the academic goals cannot be achieved within an existing major. Proposals must be submitted no later than the end of the sophomore year. Transfer students must complete at least one term of residency at UCLA before proposing an individual major. Students interested in designing an individual major should consult the Director of Student Services, School of the Arts and Architecture, 2200 Broad Art Center, (310) 206-3564.

Minors and Double Majors. Students may petition to be reviewed for a minor and/or double major on an individual basis. It is strongly recommended that students pursuing a minor or double major enroll in 15 to 20 units per term. Contact the Student Services Office for an outline of criteria required.

POLICIES AND REGULATIONS

Degree requirements are subject to policies and regulations, including the following:

STUDENT RESPONSIBILITY

Students should take advantage of academic support resources, but they are ultimately responsible for keeping informed of and complying with the rules, regulations, and policies affecting their academic standing.

STUDY LIST

Each term the student Study List must include from 12 to 20 units. The school has no provision for part-time enrollment. After the first term, students may petition to carry more than 20 units if they have an overall grade-point average of 3.0 (B) or better and

have attained at least a B average in the preceding term with all courses passed. Consult the Student Services Office no later than the end of the second week of instruction.

MINIMUM PROGRESS

Students are expected to complete satisfactorily at least 36 units during any three consecutive terms in residence; they are placed on probation if they fail to pass these units. They are subject to dismissal if they fail to pass at least 32 units in three consecutive regular terms in residence.

CHANGING A MAJOR

Students in good academic standing who wish to change their major may petition to do so provided they can complete the new major within the 216-unit limit. Petitions must be submitted to and approved by the department or committee in charge of the new major. Admission to certain majors may be closed or restricted; changes are normally not permitted if students are on probation or have begun their last term.

CONCURRENT ENROLLMENT

Enrollment at a non-UC institution or at UCLA Extension while enrolled at UCLA is not permitted.

CREDIT LIMITATIONS

The following credit limitations apply to all undergraduate students enrolled in the school:

Advanced Placement Tests. Credit earned through the College Board Advanced Placement (AP) Tests may be applied toward certain University/school requirements. Consult a counselor in the Student Services Office to determine applicable credit. Portions of AP Test credit may be evaluated by corresponding UCLA course numbers (e.g., French 4). If students take the equivalent UCLA course, unit credit for such duplication is deducted before graduation.

Graduate Courses. Undergraduate students who wish to take courses numbered in the 200 series for credit toward the degree must petition for advance approval of the department chair and the dean of the school and must meet the specific qualifications. Courses numbered in the 400 and 500 series may not be applied toward the degree.

COUNSELING SERVICES

The School of the Arts and Architecture offers advising, program planning in the major and general education requirements, and individual meetings with school and departmental counselors. For counseling information, contact the Student Services Office, School of the Arts and Architecture, 2200 Broad Art Center, (310) 206-3564.

HONORS

School of the Arts and Architecture undergraduate students who achieve scholastic distinction may qualify for the following honors and programs:

DEAN'S HONORS

To receive Dean's Honors in the School of the Arts and Architecture, students must have at least 12 graded units per term with a grade-point average of 3.8 for less than 16 units of work (3.7 GPA for 16 or more units). The honor is posted on the transcript for the appropriate term. Students are not eligible for Dean's Honors in any given term if they receive an Incomplete or a Not Passed (NP) grade, change a grade, or repeat a course.

LATIN HONORS

Latin Honors are awarded at graduation to students with superior grade-point averages. To be eligible, students must have completed 90 or more units for a letter grade at the University of California. The levels of honors are *summa cum laude*, *magna cum laude*, and *cum laude*. The minimum GPAs required are subject to change on an annual basis. Required GPAs in effect in the graduating year determine student eligibility. See the *Schedule of Classes* for the most current calculations of Latin honors.

DEPARTMENTAL SCHOLAR PROGRAM

Exceptionally promising juniors or seniors may be nominated as Departmental Scholars to pursue bachelor's and master's degree programs simultaneously. Qualifications include completion of 24 courses (96 quarter units) at UCLA or the equivalent at a similar institution and the requirements in preparation for the major. Students must also have at least one term of coursework remaining at UCLA. To obtain both the bachelor's and master's degrees students must be provisionally admitted to the Graduate Division, fulfill requirements for each program, and maintain a minimum B average. No course may be used to fulfill requirements for both degrees. Interested students should consult their department well in advance of application dates for graduate admission. Contact the Student Services Office in 2200 Broad Art Center for details.

GRADUATE STUDY

The advanced degree programs offered in the School of the Arts and Architecture provide graduate students with unique research opportunities when combined with special resources, such as the Young Research Library, the special collections of the Arts and Music Libraries, and the University's exhibition and performance halls.

Fellowships, grants, and assistantships are available through the departments and the dean of the Graduate Division.

ADMISSION

In addition to requiring that applicants hold a bachelor's degree from an accredited U.S. institution or an equivalent degree of professional title from an international institution, each department in the school has limitations and additional requirements. In general, samples of creative work (auditions, portfolios, computer programs, etc.) are required. Detailed information is available on individual department websites and

in *Program Requirements for UCLA Graduate Degrees* at <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>.

For information on the proficiency in English requirements for international graduate students, see Graduate Admission in the Graduate Study section of this catalog.

DEGREE REQUIREMENTS

Requirements to fulfill each degree objective vary according to the degree and the department. For complete degree requirements, see *Program Requirements for UCLA Graduate Degrees* at <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>.

SCHOOL OF DENTISTRY

No-Hee Park, Dean

UCLA
53-038 Dentistry
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The UCLA School of Dentistry has a national and international reputation for its teaching, research activities, and public service that prepare dental students for professional careers dedicated to patient treatment, leadership, and service. The curriculum prepares students for changes in treatment modalities and healthcare delivery systems. From the moment training begins, students actively participate in preventive and clinical dental care and soon make valuable contributions to the clinical health team. Clinical instruction emphasizes the comprehensive care of patients. Students interact with their colleagues, faculty members, and dental auxiliary personnel in much the same way as they later will interact in a private or group practice. School of Dentistry students may undertake programs designed to meet their special interests; mandatory selectives encourage advanced training in an area of particular interest and service learning. In addition to basic and applied research programs within the school, students participate in community service programs such as the Wilson-Jennings-Bloomfield UCLA Venice Dental Center. The graduate programs and resident specialty programs foster new lines of research that lead to better treatment options. An active continuing education program directed by UCLA faculty members provides a variety of hands-on courses for members of the dental profession and their auxiliaries.



The UCLA School of Dentistry has an international reputation for its teaching and research activities, which prepare students for professional careers dedicated to patient treatment and service.

DEGREES AND PROGRAMS

The school offers the following degrees:

Dental Surgery (D.D.S.)
Oral Biology (M.S., Ph.D.)

In addition, the school has a Professional Program for International Dentists (PPID) and a number of dental specialty residency programs. Articulated D.D.S., M.S., Ph.D., and specialty programs are also available. One concurrent degree program (Dentistry D.D.S./Management M.B.A.) is also offered. For information on the M.S. and Ph.D. programs in Oral Biology, for which admission to the School of Dentistry is not required, see *Program Requirements for UCLA Graduate Degrees* at <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>.

PRE-DENTAL CURRICULUM

For details on the three-year pre-dental curriculum, see <http://career.ucla.edu/Students/GradProfSchCounseling/Overview.aspx>.

D.D.S. DEGREE

The UCLA dental curriculum leading to the degree of Doctor of Dental Surgery (D.D.S.) is based on the quarter system. The course of study usually takes four academic years of approximately nine months each, with three required Summer Quarters between the first/second, second/third, and third/fourth years. The curriculum is designed to provide students with clinical competence and broad experience in all phases of clinical dentistry within the four years.

The dental curriculum consists of three principal areas: basic health sciences courses, didactic dental courses, and clinical experience. The first two years of the curriculum are chiefly devoted to didactic, laboratory, and general clinical coursework. The final two years emphasize training and instruction in the clinical fields, including endodontics, fixed prosthodontics, operative dentistry, oral diagnosis and treatment planning, oral radiology, oral and maxillofacial surgery, anesthesiology, orthodontics, pediatric dentistry, periodontics, and removable prosthodontics.

For details on the D.D.S. program and a listing of the courses offered, see <http://www.dentistry.ucla.edu/Admissions/index.asp> or write to the Office of Student Affairs, School of Dentistry, A0-111 Dentistry, UCLA, Box 951762, Los Angeles, CA 90095-1762.

RESIDENT PROGRAMS

School of Dentistry opportunities for resident study include a one-year general practice residency program; a one-year advanced education in general dentistry program; a one-year residency in maxillofacial prosthodontics; a six-year oral and maxillofacial surgery residency training program; three-year prosthodontics, periodontics, and orthodontics programs; two-year programs in the specialties of dental anesthesiology, endodontics, and orofacial pain and dysfunction; and a 26-month program in pediatric dentistry.

Information on the resident programs can be obtained by writing directly to Residency Programs, School of Dentistry, A0-111 Dentistry, UCLA, Box 951762, Los Angeles, CA 90095-1762.

SCHOOL OF LAW

Rachel F. Moran, Dean

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By any standard, the UCLA School of Law is recognized as one of the nation's great law schools. Each year a lively, talented, and diverse law student population assembles in a rigorous, innovative, and supportive environment. Members of the faculty frequently receive awards for teaching excellence and are highly regarded Universitywide and nationally. They also are recognized worldwide for their contributions to scholarship and law reform in a broad spectrum of fascinating fields that dramatically affect our world—constitutional law, environmental law and policy, criminal law, corporate law, employment law, international law, and intellectual property, to name a few. The structure of our democracy, the underpinnings and regulation of business, families, communities, and individual liberties, the powerless and homeless, the many permutations of a race-conscious society—all are subjects of investigation and study. Faculty members are committed to being intellectually and professionally demanding of students and humane at the same time, encouraging and fostering a genuine spirit of collaboration and community.

Law students select courses from an intellectually rich curriculum in private or public law and theory. Courses are taught in both traditional and clinical settings, with some offered as part of coordinated concurrent degree programs or specializations in Business Law and Policy, Critical Race Studies, Entertainment and Media Law and Policy, Law and Philosophy, and Public Interest Law and Policy. Situated at a major gateway to the Pacific Rim, UCLA is a center of international programs; international and comparative law has become a dynamic, integral part of the law school curriculum, with courses addressing the European Union, modern Japan and China, Islam, international trade and business transactions, and a host of other related courses. Part of an outstanding research University, possessed of rich cultural resources, and located in a beautiful garden setting allowing year-round outdoor study and reflection, UCLA's extensive educational programs afford law students myriad interdisciplinary opportunities both in the classroom and through independent research.

The technologically advanced, spacious, and comfortable Hugh and Hazel Darling Law Library—replete with natural lighting and views—houses an extensive collection of legal materials. The school's nationally recognized clinical program offers sophisticated courses that help students develop applied lawyering skills, focus on solving client problems, and see in their education at UCLA more of what ultimately will face them as lawyers and policymakers. An entire wing of the Law Building is designed especially for clinical teaching and student practice and facilitates work and

study in the ever-expanding clinical curriculum, which includes courses in interviewing, counseling, negotiation, business transactions, criminal and civil trial advocacy, community-based lawyering, environmental law, and international justice. The first-year lawyering skills course, taught by experienced lawyers who are full-time faculty members, is truly outstanding and features interviewing and counseling of clients and drafting of legal memoranda, contracts, and “advice letters,” thereby developing legal research capabilities and writing prowess.

Successful placement of UCLA law graduates reflects the school’s excellent national ranking. Over 400 law firm and agency interviewers from across the nation come to UCLA annually to hire our students. UCLA graduates (more than 13,000) work in coveted positions locally and around the world, not only serving in a wide variety of public and private law practices, but as judges, business executives, writers, journalists, law professors, and academic administrators.

DEGREES

The school offers the following degrees:

Juris Doctor (J.D.)
 Master of Laws (LL.M.)
 Doctor of Juridical Science (S.J.D.)

Concurrent Degree Programs

The school offers nine concurrent degree programs:

Law J.D./Afro-American Studies M.A.
 Law J.D./American Indian Studies M.A.
 Law J.D./Education M.Ed., M.A., Ed.D., or Ph.D.
 Law J.D./Management M.B.A.
 Law J.D./Philosophy Ph.D.
 Law J.D./Public Health M.P.H.
 Law J.D./Public Policy M.P.P.
 Law J.D./Social Welfare M.S.W.
 Law J.D./Urban Planning M.U.R.P.

In addition to the concurrent programs above, students may design a tailored program from other disciplines in the UCLA curriculum or from another high-quality institution; this must be arranged in consultation with the School of Law and the other selected program.

JURIS DOCTOR DEGREE

Admission

Students beginning their professional work are admitted only for Fall Semester. They must have received a bachelor’s degree from a university or college of approved standing before beginning work in the school and are required to take the Law School Admission Test (LSAT).

The school seeks to admit students of outstanding intellectual ability who bring a wide range of backgrounds, experiences, and perspectives to the classroom and the legal profession. Through long experience the faculty has concluded that the quality of the education of each student is affected in significant ways by the presence of vital diverse viewpoints. Students of all backgrounds choose to come to UCLA in significant part because of the school’s outstanding

achievements in creating a highly diverse educational environment.

In evaluating each applicant the school places substantial weight on traditional measures of academic ability, namely grades and LSAT scores. It also recognizes in its evaluation that other factors and attributes contribute greatly to a person’s ability to succeed as a law student and lawyer. When assessing academic promise and achievement, the applicant’s entire file is considered, including letters of recommendation, whether economic, physical, or other challenges have been overcome, scholarly achievements such as graduate study, awards, or publications, and the rigor of the undergraduate educational program.

In addition, the school considers attributes that may contribute to assembling a diverse class. Special emphasis is placed on socioeconomic disadvantage in the evaluation. Also considered are work experience and career achievement, community or public service, career goals (with particular attention to the likelihood of applicants representing underrepresented communities), significant hardships overcome, evidence of and potential for leadership, language ability, unusual life experiences, and any other factors (except those deemed inadmissible by The Regents or by other applicable law) that indicate the applicant may significantly diversify the student body or make a distinctive contribution to the school or the legal profession.

The UCLA School of Law has as one of its central purposes the training of attorneys who attain high levels of professional excellence and integrity and who exercise civic responsibility in myriad ways over long careers.

Detailed information about the academic programs offered by the School of Law, course titles and descriptions, fees, and the semester-system calendar by which it operates are available at <http://www.law.ucla.edu>.

Residence and Unit Requirements

Candidates for the degree of Juris Doctor must pursue resident law school study for six semesters and successfully complete 87 units. The residence requirements may be satisfied as follows: (1) six semesters in regular session in this school or (2) two semesters in regular session (or equivalent) in a school that is accredited by the American Bar Association, coupled with four semesters in regular session (or equivalent) in this school.

Every first-year student is required to take the full schedule of required courses; second- and third-year students are required to take a minimum of 12 hours and may not take more than 16 hours each semester. The second- and third-year curriculum is elective, except for a required course in professional responsibility and a substantial analytical writing requirement. In addition to the courses in the regular law school curriculum, students may take two courses for credit in other



The outstanding reputation of the UCLA School of Law is based on excellence in scholarship, a rigorous educational program, and the quality of a faculty that includes eminent authorities in all major fields of law.

disciplines within the University. Graduate students may enroll in upper division law courses on a limited basis. Law courses are not open to non-UCLA students. Auditing of courses is not permitted.

Attendance and Grades. The right to take examinations and the privilege of continuing as a student in the school are conditioned on regular classroom attendance. Information on the grading system, which is based on a letter-grade scale of A+ to F, may be obtained from the Office of the Assistant Dean for Students. Standards for satisfactory performance and for graduation are prescribed by the faculty and are published separately. They may also be obtained from the above office.

Curriculum

The school offers courses of instruction within the school and supervised educational experiences outside it in an effort to enable its students to think intelligently and to prepare them for careers of practice and public service. To this end the school employs several instructional techniques in a variety of subject areas.

In the first year of their legal education students are exposed to an intensive study of legal reasoning in a series of fields that have historically dominated legal thought. Additionally, the first-year required course in lawyering skills provides students the opportunity to explore the relationship between legal analysis and lawyering tasks such as legal writing, oral advocacy, research, and client interviewing and counseling.

In the second and third years students have an opportunity to engage in a number of different fields of law and law-related study. All of the courses in the second- and third-year curriculum are elective, with the exception of the legal profession and substantial analytical writing requirements that are requisites for graduation.

MASTER OF LAWS DEGREE

The School of Law offers a Master of Laws (LL.M.) degree program for international and domestic law school graduates who wish to pursue a year of graduate legal education. The program allows students to specialize their studies in fields such as entertainment law, international and comparative law, and four separate business law subjects, or to design their own specialization in a field of their choice. For further information, see <http://www.law.ucla.edu/llm/>.

DOCTOR OF JURIDICAL SCIENCE DEGREE

The Doctor of Juridical Science (S.J.D.) degree program is designed for those seeking to pursue careers as teachers and scholars of law. The highly selective program is open only to applicants who possess a distinguished prior academic record in law, show promise of outstanding scholarship, and demonstrate a high potential for completing a scholarly dissertation of required quality. Applicants must hold a J.D. degree or foreign equivalent and an LL.M. degree (or be enrolled in a program leading to an LL.M. degree). For further information, see <http://www.law.ucla.edu/sjd/>.

ACADEMIC SPECIALIZATIONS

BUSINESS LAW AND POLICY SPECIALIZATION

More than 60 courses and seminars are offered in the Business Law and Policy specialization. For students who want to be prepared for transactional practice to the highest level, the specialization offers an unparalleled opportunity by producing lawyers who can combine legal analysis with a thorough understanding of the business client's goals and obstacles. In an effort to help students further hone their area of study, the specialization offers four tracks that highlight the program's core strengths: business law, bankruptcy, tax law, and securities regulation.

CRITICAL RACE STUDIES SPECIALIZATION

The UCLA School of Law is the first American law school to offer an advanced curriculum that fosters students' systematic and rigorous study in the area of critical race studies. With many faculty members who have been instrumental in pioneering and advancing critical race theory, the Critical Race Studies specialization is essential to promoting insightful, intelligent public conversation about race relations. It is appropriate for law students who seek advanced study and/or practice in race and the law, critical race theory, civil rights, public policy, and other legal practice areas that are likely to involve working with racial minority clients and communities or working to combat racial inequality. The course of study emphasizes mastery of five areas: (1) history (centered on the Constitution but focused as well on a variety of other legal documents and experiences), (2) theory (critical race theory, jurisprudence, and theoretical advances outside the legal academy), (3) comparative subordination (understanding of the multiracial nature of American race relations, as well as how racial inequality is affected by discrimination based on gender, sexual orientation, and disability), (4) doctrine (case and statutory law and its interpretation), and (5) practice (including legal practice, community service, and lawyers' use of social science inquiries and methods).

ENTERTAINMENT AND MEDIA LAW AND POLICY SPECIALIZATION

Los Angeles is the center of the entertainment industry, and recognizing the unique ability to offer a specific program in that arena, the school launched the Entertainment and Media Law and Policy specialization in 2005. The specialization is the most comprehensive, advanced, and innovative approach to the study of entertainment and media law in the country. Students who fulfill the requirements have a solid grounding in the law, custom, theory, and policy in the motion picture, television, music, and other industries involved in creative and artistic matters. The program also prepares students who choose to work in non-profit institutions, government, or academia in the area of entertainment and media law and policy.

LAW AND PHILOSOPHY SPECIALIZATION

The Law and Philosophy specialization is designed for students who want to supplement their legal studies by

exploring more theoretical issues concerning the philosophical foundations of law. It is invaluable to students, especially those interested in attending graduate programs or exploring a career in academia. The specialization exposes students to material on the nature of law and legal systems, legal methodologies, and the theoretical underpinnings and justifications of particular doctrinal areas such as constitutional law, criminal law, and contract. Students need not have any prior background in philosophy, but a strong interest in the subject is recommended.

PUBLIC INTEREST LAW AND POLICY SPECIALIZATION

Recognizing the considerable debate about the proper role of the law in creating and sustaining a just society and defining public interest broadly to include all interests underrepresented by the private market, the Public Interest Law and Policy specialization strives to provide its students with an innovative and intellectually ambitious curriculum that prepares them to engage in sophisticated representation of traditionally underserved clients and interests. The specialization, one of the nation's top such programs, has a competitive admissions process. Students represent a broad range of political and ideological perspectives and often pursue additional specializations and joint degrees. Graduates have received prestigious public interest law fellowships, and they work in a variety of settings, with focus on an array of social justice issues ranging from immigration, labor and international human rights to healthcare, welfare and poverty, and civil rights. Faculty members are leaders in their respective fields and have distinguished themselves by the quality of their scholarship and teaching. They represent a broad cross-section of interests on social justice issues and bring to the classroom a depth of knowledge from a wide range of experiences and research perspectives.

PROGRAMS AND CENTERS

BUSINESS LAW AND POLICY PROGRAM

The Business Law and Policy Program is comprised of some of the most prominent scholars in areas such as corporate governance, tax law, and bankruptcy. The innovative research of the faculty members influences the national legal and policy debate over critical issues affecting the regulation and governance of business. Built on the incredible work and scholarship of the faculty, the program offers students a unique blend of policy-based and practice-oriented courses designed to prepare them to be leaders in the new economy. Each year the program hosts timely conferences and scholarly events on matters that facilitate and advance the public discussion.

CENTER FOR LAW AND ECONOMICS

The mission of the Center for Law and Economics is to foster academic scholarship exploring how economics can help us better understand and improve our laws. UCLA has one of the richest law and economics traditions in the world, and many of the founders of law and economics have made UCLA their academic home. The center, along with the John E. Anderson

Graduate School of Management and the law school's Business Law and Policy Program, sponsors the UCLA Law, Economics, and Organization Workshop where speakers present their latest works-in-progress in the broad area of law and economics as it relates to business organizations.

CLINICAL PROGRAM

With more than 26 diverse clinical offerings, the Clinical Program is widely regarded as one of the strongest in the nation. Housed in a special clinical wing, it provides extensive and rigorous practical training for student-lawyers interested in litigation, transactional, and public interest work. The program is built on two principles: that most legal skills are transferable across practice areas and that such skills are best learned through repetition in increasingly more complex settings. The goal is to provide students with conceptual frameworks that allow them to make reasoned strategic judgments across all substantive areas of law. Students can choose among a wide variety of live-client clinics (in which they represent actual clients) and sophisticated simulation-based courses. In the more than 20 clinical settings, students learn how to interview and counsel clients, draft legal documents, conduct depositions, examine and cross-examine witnesses, resolve disputes, and argue before a judge or jury. Students interested in transactional practice can learn how to finance a start-up company, sell a private company, advise a community-based organization engaged in economic development projects, or manage myriad environmental issues that arise when selling a business.

CRITICAL RACE STUDIES PROGRAM

Throughout American history, race has profoundly affected the lives of individuals, growth of social institutions, substance of culture, and workings of our political economy. Not surprisingly, this impact has been substantially mediated through the law and legal institutions. To understand the deep interconnections between race and law and, particularly the ways in which race and law are mutually constitutive, is an extraordinary intellectual challenge with substantial practical implications. In a nation that is becoming more racially diverse and finds global issues at the forefront of political debate, these issues promise to remain central to the work of law practitioners and the research of legal scholars. The only one of its kind in the U.S., the program is proud that some of the original architects of critical race theory are faculty members. It is the premier institutional setting for the study of the intersection between race and the law. Established in 2000, the program has quickly emerged as a training ground for a new generation of practitioners, scholars, and advocates committed to racial justice theory and practice and is a multifaceted program that augments a rigorous course of study with research colloquia, symposia, interdisciplinary collaborations, and community partnerships in order to integrate theory and practice.

DAVID J. EPSTEIN PROGRAM IN PUBLIC INTEREST LAW AND POLICY

The school's highly selective David J. Epstein Program in Public Interest Law and Policy was established in 1997 in response to the need to better train public

interest lawyers. It quickly became one of the nation's most innovative and successful law school public interest programs, engaging students in an array of social justice issues. Recognizing the considerable debate about the proper role of the law in creating and sustaining a just society and defining "public interest" broadly to include all interests underrepresented by the private market, the program strives to ensure that its students pursue an innovative and intellectually ambitious curriculum and extracurricular involvement that best prepares them to engage in sophisticated representation of traditionally underserved clients and interests. Beyond the formal coursework, the program provides an array of opportunities for students to hear from leading public interest practitioners and scholars, work on current policy problems, and become involved in public interest activities within and outside the School of Law. The program also sponsors a series of forums, symposia, and activities that focus on social justice issues in which all students, faculty, alumni, and the broader community participate.

EMMETT CENTER ON CLIMATE CHANGE AND THE ENVIRONMENT

The Emmett Center on Climate Change and the Environment is the nation's first law school center focused exclusively on climate change. It was established in 2008 to tackle the most pressing climate issues and works hand in hand with the Frank G. Wells Environmental Law Clinic and the Evan Frankel Environmental Law and Policy Program. The center engages experts in other UCLA schools, as well as those outside UCLA who are working on matters related to climate change.

EMPIRICAL RESEARCH GROUP

The UCLA School of Law is one of the only law schools in the country to provide its faculty members with the support of trained statisticians to further empirical research. The Empirical Research Group (ERG) is a methodology-oriented research center that specializes in the design and execution of quantitative research in law and public policy, and enables faculty members to include robust empirical analysis in their legal scholarship. Articles and reports published by faculty members working with ERG have covered topics as diverse as bankruptcy, legal aid, pollution prevention, tax policy, gay rights, the living wage, and campaign finance disclosure. Articles, reports, working papers, and supporting data are posted on the ERG website. In addition to faculty scholarship, ERG trains law students as research assistants in empirical methods such as sampling, data collection, and statistics, and works closely with law students who conduct their own empirical research. ERG has received or facilitated more than \$2.5 million in foundation support for specific projects, including a grant from the Pew Charitable Trusts to study state campaign finance disclosure.

ENTERTAINMENT AND MEDIA LAW AND POLICY PROGRAM

The Entertainment and Media Law and Policy Program supports and expands the curricular offerings of the Entertainment and Media Law and Policy special-

ization. For students interested in learning more about entertainment law, the program helps them earn externships with entertainment-related businesses, brings influential speakers to campus, and sponsors the industry's top legal conference on entertainment issues, the annual UCLA Entertainment Symposium. Students run an entertainment-related journal, the *Entertainment Law Review*, as well as the student organization, the Entertainment Law Association.

ENVIRONMENTAL LAW CENTER

The Environmental Law Center houses the school's varied and interdisciplinary work related to environmental law and policy. It includes the Frank G. Wells Environmental Law Clinic, which offers excellent opportunities for students to obtain hands-on experience in environmental law, the Emmett Center on Climate Change and the Environment, and the Evan Frankel Environmental Law and Policy Program, as well as the work of UCLA's world-class environmental law faculty. The center provides opportunities for members of the UCLA community to have a voice in solving the important environmental issues of the twenty-first century and to educate the public about these issues.

EVAN FRANKEL ENVIRONMENTAL LAW AND POLICY PROGRAM

The Evan Frankel Environmental Law and Policy Program fosters informed analysis of timely and important issues involving governance and regulation in environmental policy. It supports ongoing work on public policy issues related to environmental governance and regulation through research publications, the timely placement of op-eds in influential mainstream publications, and by bringing together stakeholders and policymakers to work toward solutions to critical environmental problems. The program has recently worked on issues including catastrophe prevention and response, enforcing the California Endangered Species Act, pollution prevention mandates, addressing environmental impacts related to liquefied natural gas, and studying air pollution in microenvironments. Through its interdepartmental work with the UCLA Institute of the Environment, the program also participates in publishing the annual Environmental Report Card.

EXTERN PROGRAM

The school has one of the most extensive, best established, and most diversified student extern programs in the nation. Under supervision of experienced public interest and governmental lawyers and federal judges, students perform legal work in government offices, public interest law firms, nonprofit agencies, and the chambers of federal judges.

In the semester-long program, students develop legal skills in supervised settings and acquire perspectives about the lawyering process or the judicial decision-making process. They also participate in a faculty-led, law school-based seminar in which they reflect systematically in a classroom setting on their experiences in the placement. Students regularly report that the program is an excellent educational experience.

GLOBALIZATION AND LABOR STANDARDS PROGRAM

For students interested in labor and employment issues, UCLA has a Globalization and Labor Standards (GALS) Program that maintains a web-based library of law review articles on all issues of international labor rights and global labor standards. GALS also publishes a monthly newsletter, organizes conferences, and hosts regular speaker programs. Student contributors are involved in every stage of the project.

INTERNATIONAL AND COMPARATIVE LAW PROGRAM

The International and Comparative Law Program is one of the best in the nation. Permanent faculty members who have built their reputations in the field offer numerous international and comparative law courses, such as international business transactions, national security law, human rights, international environmental law, international criminal law, European Union law, and Islamic law. The study of international and comparative law at UCLA is further strengthened by the opportunity to take courses in other UCLA departments. Some of the country's best work in international economics, politics, and business occurs at UCLA, and many law students find it valuable to complement their law school work with coursework in other departments. Students may also pursue joint degrees with other departments with the approval of the law school administration.

INTERNATIONAL HUMAN RIGHTS LAW PROGRAM

International human rights touch everything from politics to commerce, security to public health, law enforcement to the environment. In 2008 the UCLA Law School established the first major international human rights law program in Southern California to provide students with opportunities to participate in important human rights activities across the range of clinical work and scholarship. At the core are a clinical program in which students can conduct on-the-ground investigations of international human rights abuses, a research program to frame and address important questions about human rights law, and a public program with regular seminars, workshops, lectures, and films. The International Justice Clinic gives students unique opportunities to participate in the process of holding perpetrators of massive human rights abuses to account.

LAW AND PHILOSOPHY PROGRAM

The School of Law and the Department of Philosophy offer an exciting new program in law and philosophy that takes advantage of the law faculty's strength and depth in the subject and the school's close relationship to the Philosophy Department. The program has many dimensions, including a wide range of courses at the intersection of law and philosophy and a legal theory workshop, open to all members of the law school and Philosophy Department, in which leading scholars present works in progress.

NATIVE NATIONS LAW AND POLICY CENTER

The Native Nations Law and Policy Center supports Native Nations to enhance their governmental institutions and laws, strengthen their cultural resource protections, and address critical public policy issues by bringing together the University's academic resources and the knowledge and experience of tribal leaders and knowledge-holders. The center serves as the home for the Tribal Legal Development Clinic and Tribal Appellate Court Clinic that involve students in projects such as constitution drafting, code development, and law clerking for Indian nation clients.

OFFICE OF PUBLIC INTEREST PROGRAMS

The UCLA School of Law has a long-standing commitment to public service and is committed to cultivating an environment that encourages all of its students and alumni to better serve society in myriad ways. Students gain significant exposure and experience in public service through clinical courses, a pro bono program, an externship program, extensive public interest advising and informational programming, and numerous student organizations. The Office of Public Interest Programs, the hub of the school's public interest efforts, hosts a variety of career-oriented programs and relevant public interest forums and events in which students, faculty, alumni, and the broader community participate. The office also hosts the annual Southern California Public Interest Career Day that attracts more than 110 public service employers and some 1,000 students from around the region. Additionally, the office provides support for the student-run Public Interest Law Fund (PILF) and its annual auction, which raises monies to help fund summer public service internships.

RICHARD S. ZIMAN CENTER FOR REAL ESTATE

Reflecting a growing interdisciplinary focus at UCLA, the School of Law formed a partnership in 2005 with the John E. Anderson Graduate School of Management to create the Richard S. Ziman Center for Real Estate. The center is firmly grounded in the scholarship and teaching missions of both schools and offers practical application principles that help real estate industry professionals, public officials, and business people alike make critical policy and business decisions. The center truly bridges the divide between research and practice and offers students a full range of coursework that provides a holistic view of real estate issues.

WILLIAMS INSTITUTE ON SEXUAL ORIENTATION LAW AND PUBLIC POLICY

The Charles R. Williams Institute on Sexual Orientation Law and Public Policy is the only think tank of its kind dedicated to the field of sexual orientation law and public policy. The institute supports legal scholarship, legal research, policy analysis, and education regarding sexual orientation discrimination and other legal issues that affect lesbian and gay people. The institute began with the recognition that issues central to sexual orientation law have profound implications for the development of the law and public policy in general. Drawing on the intellectual and material

resources of UCLA, the institute provides a national center for the interdisciplinary exploration of these issues by scholars, judges, practitioners, advocates, and students.

SCHOOL OF NURSING

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The School of Nursing enjoys a national and international reputation for excellence in teaching, research, and clinical practice.

A strong scientific basis underlies the teaching of nursing practice, leadership, and research. Related clinical experiences are arranged within the UCLA Medical Center, its affiliates, or in selected community sites.

At the generic bachelor's level, nurses are prepared as generalists with special skills in primary, secondary, and tertiary prevention and care within a population-based context, leadership, and evidence-based practice. A program designed for associate degree or diploma nurses provides an opportunity to learn about community-based nursing care while providing a foundation for entering the advanced practice nurse master's degree program. At the master's level, nurses are prepared as generalists in hospital-based care or for advanced nursing practice as nurse practitioners, clinical specialists, or administrators in a variety of settings and specialized areas of healthcare. The Ph.D. program prepares scholars who conduct original research, generate new theories, and build the scientific basis for professional nursing practice. Research is both basic and applied.

The school has an exceptionally qualified faculty; many members have national and international reputations for excellence. The school is consistently ranked high for its teaching and research programs. The innovative curriculum is responsive to national needs in healthcare and the diversity of the patient population. Graduates of the program are sought by healthcare institutions and educational programs, and many alumni have become leaders in the field. Education in this research University with its full range of academic disciplines provides a rich environment for preparation in the health sciences.

HISTORY AND ACCREDITATION

In 1949 The Regents of the University of California authorized the School of Nursing as one of the profes-

sional schools of the UCLA Center for the Health Sciences. This action paved the way in 1950 for the opening of an undergraduate generic program in nursing leading to the Bachelor of Science (B.S.) degree and made possible the establishment of a graduate program leading to the Master of Science (M.S.) degree in Nursing in 1951. In 1966 the Master of Nursing (M.N.) degree was established as an alternate option to the M.S. degree. The M.S. degree program was discontinued in 1969. The Regents approved the Doctor of Nursing Science (D.N.Sc.) degree program in 1986, and in 1987 the first doctoral students were admitted. In 1996 the Office of the President and The Regents approved the change in the master's degree designation from M.N. to Master of Science in Nursing (M.S.N.); the change in doctoral degree designation from D.N.Sc. to Ph.D. in Nursing was approved in 1995.

The original generic B.S. program curriculum was revised in 1997 to meet the educational needs of students who are registered nurses with Associate Degrees or diplomas in nursing.

In 2006 the school reinstated a generic/prelicensure B.S. program with admission at the freshman level and launched the master's entry clinical nurse (MECN)/prelicensure program option within the M.S.N. degree program, which is designed for prelicensure students with bachelor's degrees in another discipline.

All School of Nursing bachelor's and master's programs have Board of Registered Nursing approval. In 2001 the Commission on Collegiate Nursing Education accredited the existing bachelor's and master's degree programs for a term of 10 years.

DEGREES

The school offers the following degrees:

Bachelor of Science (B.S.)
Master of Science in Nursing (M.S.N.)
Doctor of Philosophy (Ph.D.)

Concurrent Degree Program

The school offers one concurrent degree program:
Nursing M.S.N./Management M.B.A.

PHILOSOPHY OF THE SCHOOL

The UCLA School of Nursing is guided by a philosophy that embodies the mission and goals of the University of California. The philosophy addresses nursing, the clients of nursing, and nursing students. The school is committed to an interdisciplinary learning environment.

Nursing encompasses clinical practice, education, research, consultation, leadership, management, and service to the profession and the local and global community. It involves individuals, families, groups, organizations, and communities as clients. The profession must consider the human and physical environments that interact with these clients who may have health conditions that range from wellness to illness. Nursing activities must therefore include health promotion and maintenance, intervention and treatment, rehabilitation and restoration, and palliation. At an advanced practice level, nursing involves comprehensive healthcare that encompasses the responsibility and account-

The School of Nursing is consistently ranked high for its teaching and research programs. The innovative curriculum is responsive to national needs in healthcare and the diversity of the patient population.



ability for continuity of care across the health/illness spectrum.

Nursing research is both applied and basic and has as its core actual or potential human responses to illness and as its goal the development of nursing science. Guided by ethical standards that consider the perspectives of the client, the healthcare provider, and the larger society, nursing has a social mission that encompasses the right and responsibility to provide leadership in health policy and healthcare to all its clients regardless of disease status, gender, race, or culture.

People who receive client-centered nursing care are complex individuals who exist in relationship to others in their family and community. This complexity of person involves biological, behavioral, emotional, sociocultural, and spiritual dimensions. Each individual reflects a unique combination of these dimensions that interact dynamically with the environment. The clients of nursing are autonomous decision makers who have certain values and knowledge about themselves that not only are relevant but essential to successful healthcare outcomes. As a result, persons have a right and a responsibility to participate collaboratively in their care with the nurse and other health professionals.

Successful nursing students are active learners who bring unique gender, cultural, and ethnic life experiences to the professional practice of nursing. Students at all levels learn relevant theory, acquire practice skills, and are socialized into the profession of nursing. Increasing levels of complexity and sophistication of learning and socialization are expected of students in the different programs. Whether at the beginning practice, advanced practice, or scholar level, nursing students learn to apply knowledge, skills, and professional attitudes in their practice that may include educative, administrative, and research arenas. While students have the right and responsibility to participate in their own learning, faculty members have the right and responsibility to structure the teaching/learning environment to facilitate learning. Individual academic counseling and a variety of one-on-one, small-group, and interactive learning formats assist students to meet program and individual learning goals.

UNDERGRADUATE ADMISSION

The School of Nursing admits new undergraduate students in Fall Quarter only. B.S. (Generic/Prelicensure) students are admitted at the freshman and junior levels, while B.S. (R.N. to B.S./Postlicensure) students are admitted with upper division standing and start their program courses in the summer prior to Fall Quarter entry. See Nursing in the Curricula and Courses section for additional admission requirements.

UNDERGRADUATE DEGREE REQUIREMENTS

School of Nursing students must meet three types of requirements for the Bachelor of Science degree:

1. University requirements
2. School requirements
3. Major requirements

UNIVERSITY REQUIREMENTS

The University of California has two requirements that undergraduate students must satisfy in order to graduate: (1) Entry-Level Writing or English as a Second Language and (2) American History and Institutions. See Degree Requirements in the Undergraduate Study section for details.

School of Nursing students enrolled in English as a Second Language 33A, 33B, 33C, 35 must take each course for a letter grade.

SCHOOL REQUIREMENTS

The School of Nursing has six requirements that must be satisfied for the award of the degree: unit, scholarship, academic residence, writing, quantitative reasoning, and general education.

UNIT REQUIREMENT

Students in the Nursing B.S. (Generic/Prelicensure) program must complete with a passing grade a minimum of 180 units. At least 83 of the 180 units must be upper division courses numbered 100 through 199. A maximum of 216 units is permitted. Students with advanced placement or international baccalaureate credit may exceed the unit maximum by the amount of that credit.

Students in the Nursing B.S. (R.N. to B.S./Postlicensure) program must complete with a passing grade a minimum of 180 units. At least 63 of the 180 units must be upper division courses numbered 100 through 199.

School of Nursing Structure of a Degree

University Requirements

1. Entry-Level Writing or English as a Second Language
2. American History and Institutions

School Requirements

1. Unit
2. Scholarship
3. Academic Residence
4. Writing Requirement
 - Writing I
 - Writing II
5. Quantitative Reasoning
6. General Education
 - Foundations of Arts and Humanities
 - Foundations of Society and Culture
 - Foundations of Scientific Inquiry

Major Requirements

1. Preparation for the Major
2. The Major

Courses that do not satisfy specific University, school, or department requirements are referred to as electives and can be used to meet the minimum unit requirement for graduation.

SCHOLARSHIP REQUIREMENT

A 2.0 (C) average is required in all work attempted at the University of California, exclusive of courses in UCLA Extension and those graded Passed/Not Passed. A 2.0 (C) average is also required in all upper division courses in the major taken at the University, as well as in all courses applied toward the general education and University requirements. Each required nursing course in the school must be completed with a grade of C or better (C– grade is not acceptable). Elective courses may be taken on a Passed/Not Passed basis with prior approval, according to the policy listed in the Academic Policies section of this catalog.

ACADEMIC RESIDENCE REQUIREMENT

Students are in residence while enrolled and attending classes at UCLA as a major in the School of Nursing.

Students in the Nursing B.S. (Generic/Prelicensure) program must complete 77 of the last 97 nursing course units in residence.

Students in the Nursing B.S. (R.N. to B.S./Postlicensure) program must complete 76 of the last 85 units in residence.

WRITING REQUIREMENT

Students must complete the University's Entry-Level Writing or English as a Second Language (ESL) requirement prior to completing the school writing requirement.

Students admitted to the school are required to complete a two-term writing requirement—Writing I and Writing II. Two courses in English composition are required for graduation. Both courses must be taken for letter grades, and students must receive grades of C or better (C– grades are not acceptable).

Writing I. The Writing I requirement must be satisfied within the first three terms of enrollment by completing English Composition 3 or 3H, or an equivalent course, with a grade of C or better (C– or a Passed grade is not acceptable).

The Writing I requirement may also be satisfied by scoring 4 or 5 on one of the College Board Advanced Placement Tests in English or a combination of a score of 720 or higher on the SAT Reasoning Test Writing Section and superior performance on the English Composition 3 Proficiency Examination.

Students whose native language is not English may satisfy the Writing I requirement by completing English as a Second Language 36 or an equivalent course with a grade of C or better (C– or a Passed grade is not acceptable). Admission into the course is determined by completion of English as a Second Language 35 with a passing grade or proficiency demonstrated on the English as a Second Language Placement Examination (ESLPE).

Qualifying examination scores and courses are determined by the school Faculty Executive Committee. Qualifying scores may be viewed on the Office of Undergraduate Admissions and Relations with Schools website. Approved courses are published in the *UCLA Schedule of Classes*.

Writing II. The Writing II requirement must be satisfied within seven terms of enrollment by completing

one course from a faculty-approved list of courses published in the *Schedule of Classes* at <http://www.registrar.edu/soc/writing.htm> and available in the Student Affairs Office. The course must be completed with a grade of C or better (C– or a Passed grade is not acceptable).

If approved for general education (GE) credit, applicable courses may also fulfill a GE requirement.

Nursing B.S. (Generic/Prelicensure) transfer students with 90 or more units who have completed the Intersegmental General Education Transfer Curriculum (IGETC) will have satisfied the Writing I and Writing II requirements. No transfer student is admitted to the school without completing, with a grade of C or better (C– grade is not acceptable), a college-level writing course that the Office of Undergraduate Admissions and Relations with Schools accepts as equivalent to English Composition 3.

Nursing B.S. (R.N. to B.S./Postlicensure) transfer students must complete a second English composition course with a grade of C or better (C– grade is not acceptable) to fulfill the Writing II requirement.

QUANTITATIVE REASONING REQUIREMENT

Nursing B.S. (Generic/Prelicensure) students must demonstrate basic skills in quantitative reasoning. The requirement may be satisfied by completing one approved UCLA course (see list below) or an equivalent course within the first seven terms of enrollment. The course must be taken for a letter grade, and students must receive a grade of C or better (C– grade is not acceptable).

The requirement may also be satisfied by achieving an SAT Reasoning Test Mathematics Section score of 600 or higher or an SAT Subject Test in Mathematics score

School of Nursing General Education Requirements

Foundations of the Arts and Humanities

Literary and Cultural Analysis 1 Course
 Philosophical and Linguistic Analysis 1 Course
 Visual and Performance Arts Analysis
 and Practice 1 Course
 Total = 15 units minimum

Foundations of Society and Culture

Historical Analysis 1 Course
 Social Analysis 1 Course
 Third course from either subgroup 1 Course
 Total = 15 units minimum

Foundations of Scientific Inquiry

Life Sciences 2 Courses
 Physical Sciences 2 Courses
 Total = 18 units minimum

Total GE 10 Courses/48 Units Minimum

One of the 10 courses may be a GE-approved Writing II course in an appropriate foundational area selected from a list published in the *Schedule of Classes* and available in the Student Affairs Office.

Preparation for the major courses may overlap with GE foundation courses.

of 550 or higher. Approved UCLA courses and examinations, and qualifying scores, are determined by the school Faculty Executive Committee. Qualifying examinations and scores may be viewed on the Office of Undergraduate Admissions and Relations with Schools website. Approved courses are listed below.

If approved for general education (GE) credit, applicable courses may also fulfill a GE requirement.

Nursing B.S. (Generic/Prelicensure) transfer students with 90 or more units who have completed the Intersegmental General Education Transfer Curriculum (IGETC) will have satisfied the quantitative reasoning requirement. No transfer student is admitted to the school without completing, with a grade of C or better (C– grade is not acceptable), a college-level quantitative reasoning course that the Office of Undergraduate Admissions and Relations with Schools accepts as equivalent to those approved by the Faculty Executive Committee.

Approved courses include Biostatistics 100A, 100B, Mathematics 2 (or any higher numbered course except 19, 71SL, 72SL, 89, 89HC, 98XA, 98XB, 99, 103A, 103B, 103C, 105A, 105B, 105C, 189, 189HC, 195, 197, 199), Philosophy 31, Political Science 6, 6R, Program in Computing 10A, 10B, 10C, Statistics 10, 10H, 11, 12, 13, 14.

Nursing B.S. (R.N. to B.S./Postlicensure) students must take calculus to fulfill the quantitative reasoning requirement if the required chemistry courses are completed at UCLA.

GENERAL EDUCATION REQUIREMENTS

General education (GE) is more than a checklist of required courses. It is a program of study that (1) reveals to students the ways that research scholars in the arts, humanities, social sciences, and natural sciences create and evaluate new knowledge, (2) introduces students to the important ideas and themes of human cultures, (3) fosters appreciation for the many perspectives and the diverse voices that may be heard in a democratic society, and (4) develops the intellectual skills that give students the dexterity they need to function in a rapidly changing world.

This entails the ability to make critical and logical assessments of information, both traditional and digital; deliver reasoned and persuasive arguments; and identify, acquire, and use the knowledge necessary to solve problems.

Requirements for Generic/Prelicensure Students

FOUNDATIONS OF KNOWLEDGE

General education courses are grouped into three foundational areas: Foundations of the Arts and Humanities, Foundations of Society and Culture, and Foundations of Scientific Inquiry.

Ten courses (48 units minimum) are required. A course taken to meet the Writing II requirement may also be applied toward a GE requirement. Preparation for the major courses may overlap with the foundation courses.

Students must meet with a counselor in the Student Affairs Office to determine the applicability of GE Cluster courses toward Writing II or GE requirements.

Courses listed in more than one category can fulfill GE requirements in only one of the cross-listed categories.

Foundations of the Arts and Humanities. Three 5-unit courses, one from each subgroup:

Literary and Cultural Analysis
Philosophical and Linguistic Analysis
Visual and Performance Arts Analysis and Practice

The aim of courses in this area is to provide perspectives and intellectual skills necessary to comprehend and think critically about our situation in the world as human beings. In particular, the courses provide the basic means to appreciate and evaluate the ongoing efforts of humans to explain, translate, and transform their diverse experiences of the world through such media as language, literature, philosophical systems, images, sounds, and performances. The courses introduce students to the historical development and fundamental intellectual and ethical issues associated with the arts and humanities and may also investigate the complex relations between artistic and humanistic expression and other facets of society and culture.

Foundations of Society and Culture. Three 5-unit courses, one from each subgroup and a third course from either subgroup:

Historical Analysis
Social Analysis

The aim of courses in this area is to introduce students to the ways in which humans organize, structure, rationalize, and govern their diverse societies and cultures over time. The courses focus on a particular historical question, societal problem, or topic of political and economic concern in an effort to demonstrate how issues are objectified for study, how data is collected and analyzed, and how new understandings of social phenomena are achieved and evaluated. Because communication skills are essential in the nursing profession, Communication Studies 10 is recommended for this foundational area.

Foundations of Scientific Inquiry. Four courses, two from each subgroup:

Life Sciences
Physical Sciences

The aim of courses in this area is to ensure that students gain a fundamental understanding of how scientists formulate and answer questions about the operation of both the physical and biological world. The courses also deal with some of the most important issues, developments, and methodologies in contemporary science.

Foundations Course Lists. Creating and maintaining a general education curriculum is a dynamic process; consequently, courses are frequently added to the list. For the most current list of approved courses that satisfy the Foundations of Knowledge GE plan, consult an academic counselor or see <http://www.registrar.ucla.edu/ge/>.

Intersegmental General Education Transfer Curriculum

Nursing B.S. (Generic/Prelicensure) transfer students from California community colleges must fulfill UCLA lower division GE requirements by completing the Intersegmental General Education Transfer Curriculum (IGETC) prior to transfer. The curriculum consists of a series of subject areas and types of courses that have been agreed on by the University of California and the California community colleges. Because of course sequencing and the rigor of the program, students must fulfill the general education requirements prior to transfer.

Additional requirements are listed under generic/prelicensure admission and preparation for the major in the Curricula and Courses section.

Requirements for R.N. to B.S./Postlicensure Students

Completion of the following prenursing/general education courses with grades of C or better (C– grades are not acceptable) prior to entering UCLA: human anatomy (one course), sociocultural anthropology (one course), humanities (one or more courses), introductory or general microbiology with laboratory (one course), introductory physics (one course or one year of high school physics with laboratory with a grade of B or better), human physiology (one course), introductory psychology (one course), introductory sociology (one course).

In addition, students are required to complete a block of 30 units of credit by examination administered by the Excelsior College Examination Service in Adult Nursing, Fundamentals of Nursing, Maternal and Child Nursing-AD, and Psychiatric/Mental Health Nursing (this lower division credit applies to the Nursing major only).

MAJOR REQUIREMENTS

The School of Nursing sets two types of requirements that must be satisfied for the award of the degree: (1) Preparation for the Major and (2) the Major. See the Curricula and Courses section of this catalog for details.

POLICIES AND REGULATIONS

Degree requirements are subject to policies and regulations, including the following:

STUDENT RESPONSIBILITY

Students should take advantage of academic support resources, but they are ultimately responsible for keeping informed of and complying with the rules, regulations, and policies affecting their academic standing.

STUDY LIST

The presentation of Study Lists by the students and their acceptance by the school evidences an obligation on the part of the students to faithfully perform the designated work to the best of their ability. Withdrawal from, or neglect of, any course entered on the Study List, or a change in program without the formal permission of the assistant dean of the school renders

students liable to enforced withdrawal from the University or other appropriate disciplinary action.

Students are expected to follow the course sequence specified for their program. After the first term, they may petition to carry a program of study exceeding 20 units provided they have an overall grade-point average of 3.0 (B or better) and have attained at least a B average in the preceding term with all courses passed.

Nursing B.S. (R.N. to B.S./Postlicensure) students may not enroll in more than four courses per term unless a petition is approved in advance by the assistant dean of Student Affairs.

MINIMUM PROGRESS

Students are expected to complete satisfactorily at least 36 units during any three consecutive terms in residence; they are placed on probation if they fail to pass these units. They are subject to dismissal if they fail to pass at least 32 units in three consecutive regular terms in residence.

CHANGING A MAJOR

Students in good academic standing who wish to change their major may petition to do so provided they can complete the new major within the 216-unit limit. Petitions must be submitted to and approved by the school or College department or committee in charge of the new major. Admission to the Nursing major may be closed or restricted; changes are normally not permitted if students are on probation or have begun their last term.

CONCURRENT ENROLLMENT

Enrollment at a non-UC institution or UCLA Extension while enrolled at UCLA is not permitted except in extraordinary circumstances. No credit is given for courses taken concurrently elsewhere without the approval of the school.

CREDIT LIMITATIONS

The following credit limitations apply to all undergraduate students enrolled in the school:

Advanced Placement Tests. Credit earned through the College Board Advanced Placement (AP) Tests may not be applied toward the general education requirements. Portions of AP Test credit may be evaluated by corresponding UCLA course numbers (e.g., History 1C). If students take the equivalent UCLA course, unit credit for such duplication is deducted before graduation.

COUNSELING SERVICES

The School of Nursing gives direction and provides information to interested potential applicants to the B.S. programs through admissions information sessions. The schedule for these sessions, program information, and applications are available at <http://www.nursing.ucla.edu>. Applicants may write to the UCLA School of Nursing, Student Affairs Office, 2-137 Factor Building, Box 951702, Los Angeles, CA 90095-1702, call (310) 825-7181 Tuesday through Thursday, or contact the Student Affairs Office via e-mail at sonsaff@sonnet.ucla.edu.

On entry to the junior year, students are assigned a faculty adviser to aid in planning their total program. Advisers continue meeting with students each term to evaluate progress, to identify academic and personal needs and match them with available school and University resources, to confirm University and course requirements, and to maximize the students' abilities to reach educational and professional goals. Due to the heavy course load that the school's programs require, students are advised against working full time.

HONORS

School of Nursing undergraduate students who achieve scholastic distinction may qualify for the following honors:

DEAN'S HONORS

To receive Dean's Honors in the School of Nursing, undergraduate students must have at least 12 graded units per term with a grade-point average of 3.75. The honor is posted on the transcript for the appropriate term. Students are not eligible for Dean's Honors in any given term if they receive an Incomplete or a Not Passed (NP) grade, change a grade, or repeat a course.

LATIN HONORS

Latin Honors are awarded at graduation to undergraduate students with superior grade-point averages. The levels of honors and the requirements for each level are: *summa cum laude*, an overall average of 3.877; *magna cum laude*, 3.792; *cum laude*, 3.660. To be eligible students must have completed at least 98 University of California units for a letter grade. The minimum GPAs required are subject to change on an annual basis. Required GPAs in effect in the graduating year determine student eligibility. See the *Schedule of Classes* for the most current calculations of Latin honors.

GRADUATE STUDY

The Master of Science in Nursing (M.S.N.) degree program offers prelicensure and postlicensure options. The master's entry clinical nurse (MECN)/prelicensure program is designed for students with a bachelor's degree in another discipline who wish to become registered nurses. The advanced practice nurse (APN)/postlicensure program is for registered nurses with a bachelor's degree in nursing who wish to prepare for an advanced practice role, such as nurse practitioner, clinical nurse specialist, or nurse administrator. Advanced practice specialties include acute care, family, gerontology, nursing administration, occupational and environmental health, oncology, and pediatrics.

The Ph.D. program prepares scholars who do original research, generate new theories, and build the scientific basis for professional nursing practice. Research is both basic and applied.

ADMISSION

Detailed information about the graduate academic programs offered by the School of Nursing is included in the *UCLA School of Nursing Announcement*, available

from the Student Affairs Office, 2-137 Factor Building.

For information on the proficiency in English requirements for international graduate students, see Graduate Admission in the Graduate Study section of this catalog.

DEGREE REQUIREMENTS

For complete degree requirements, see *Program Requirements for UCLA Graduate Degrees* at <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>.

SCHOOL OF PUBLIC AFFAIRS

Franklin D. Gilliam, Jr., Dean

UCLA
3250 Public Affairs Building
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Los Angeles, CA 90095-1656

(310) 206-7568
fax: (310) 206-5773
<http://www.publicaffairs.ucla.edu>

The School of Public Affairs educates at the highest level of excellence the next generation of practitioners and academic researchers in the problem-solving professions—public policy, social welfare, and urban planning. The school provides relevant lifelong education in the form of executive education, career training, technical assistance, and public pedagogy. The school also produces outstanding basic and applied policy and practice research and provides balanced and timely policy advice to policymakers in the public, private, and non-profit sectors.



DEPARTMENTS

The school combines three academic departments—Public Policy, Social Welfare, and Urban Planning—and faculty members from such diverse disciplines as economics, geography, history, law, management, and political science. The school trains policy professionals, planners, and social workers for public, private, and nongovernment service, conducts research on significant regional, national, and international issues with a strong interdisciplinary and cross-cultural focus, and acts as a convener and catalyst for public dialogue, engaging people locally, nationally, and internationally.

DEGREES AND PROGRAMS

The school offers the following degrees, in addition to undergraduate minors in Public Affairs and in Urban and Regional Studies:

Public Policy (M.P.P.)
Social Welfare (M.S.W., Ph.D.)

The School of Public Affairs trains practitioners and academic researchers in the problem-solving professions of public policy, social welfare, and urban planning.

Urban and Regional Planning (M.U.R.P.)
Urban Planning (Ph.D.)

Concurrent Degree Programs

The school offers 11 concurrent degree programs:

Public Policy M.P.P./Law J.D.
Public Policy M.P.P./Management M.B.A.
Public Policy M.P.P./Public Health M.P.H.
Public Policy M.P.P./Social Welfare M.S.W.
Social Welfare M.S.W./Asian American Studies M.A.
Social Welfare M.S.W./Law J.D.
Social Welfare M.S.W./Public Health M.P.H.
Urban Planning M.U.R.P./Architecture M.Arch. I
Urban Planning M.U.R.P./Latin American
Studies M.A.
Urban Planning M.U.R.P./Law J.D.
Urban Planning M.U.R.P./Management M.B.A.

Obtain brochures about the school's programs from the department offices, 3357 Public Affairs Building, or see <http://www.publicaffairs.ucla.edu>.

The school also offers a wide array of undergraduate courses in public policy, social welfare, and urban planning. Enrollment in these courses is open to all undergraduate students.

ADMISSION

In addition to requiring that applicants hold a bachelor's degree from an accredited U.S. institution or an equivalent degree or professional title from an international institution, each department in the school has limitations and additional requirements. Individuals interested in concurrent degrees must be admitted to both programs. Detailed information can be found in *Program Requirements for UCLA Graduate Degrees* at <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>.

For information on the proficiency in English requirements for international graduate students, see Graduate Admission in the Graduate Study section of this catalog.

DEGREE REQUIREMENTS

Requirements to fulfill each degree objective vary according to the degree and the department. For complete degree requirements, see *Program Requirements for UCLA Graduate Degrees* at <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>.

RESEARCH CENTERS

The school houses a number of research centers where faculty members from across the campus pursue issues of mutual interest. In addition to their focus on practical policy problems, the research centers also provide opportunities for student financial aid in the form of research assistant positions, grants, and fellowships.

CENTER FOR CIVIL SOCIETY

The Center for Civil Society (CCS) is the focal point for the school's programs and activities in nonprofit leadership and management, community organizations and advocacy, international nongovernmental organizations, and philanthropy. The center coordinates teaching of nonprofit and civil society aspects, conducts research, convenes meetings and seminars, offers

executive education, and contributes to a policy dialogue about the current and future role of nonprofit organizations, philanthropy, and civil society. See <http://www.spa.ucla.edu/ccs/>.

CENTER FOR POLICY RESEARCH ON AGING

The Center for Policy Research on Aging (CPRA) was formed to address the significant issues of an aging society through policy analysis, dissemination of information, and technical assistance to the public and private sectors. The demographic challenges of a nation growing older and living longer force us to confront the roles of government and the private sector in serving the increasing number of elderly and their families. The center's mission is to conduct research, inform policymakers, link communities to local, state, and federal governments, and foster collaboration among UCLA faculty members. See <http://www.publicaffairs.ucla.edu/content/center-policy-research-aging>.

INSTITUTE OF TRANSPORTATION STUDIES

The UCLA Institute of Transportation Studies (ITS), one of the leading transportation policy research centers in the U.S., was created in 1993 to conduct research and provide professional education on the social, economic, environmental, and cultural aspects of transportation policy. Each year ITS faculty members, students, and research staff collaborate on a wide array of transportation policy and planning studies, ranging from an analysis of the travel trends and transportation needs of immigrants and low-income workers to the testing and evaluation of innovative fare programs to increase public transit use. See <http://www.its.ucla.edu> or <http://www.publicaffairs.ucla.edu/content/institute-transportation-studies>.

RALPH AND GOLDY LEWIS CENTER

The Lewis Center was established in 1988 with a \$5-million endowment from Ralph and Goldy Lewis to promote the multidisciplinary study, understanding, and solution of regional policy issues in California. Research projects include topics such as welfare reform, immigration, the environment, health insurance, labor and employment, and transportation. See <http://www.lewis.ucla.edu> or <http://www.publicaffairs.ucla.edu/content/ralph-and-goldy-lewis-center>.

LUSKIN CENTER FOR INNOVATION

The Luskin Center for Innovation serves as a point of intersection and interaction at UCLA, bringing together the brightest minds to concentrate on a specific urgent policy issue in Southern California. Los Angeles is at a critical juncture in many key areas of public policy. UCLA has the intellectual capital to bring together some of the top thinkers in the country, the most enterprising students, and relevant research to support innovative approaches to broad policy problems.

Strategically located within the School of Public Affairs, the Luskin Center was founded with a generous gift from Renee and Meyer Luskin to engage the academic and public decision makers together in actively pursuing solutions to the Los Angeles region's most urgent threats. The center turns the conventional

dividing lines between the academic and practical world into a meeting point—reaching across disciplines, sectors, and political points of view to actively pursue long-term solutions that can immediately be put into practice. The current funding cycle addresses environmental sustainability and pollution reduction in Los Angeles. See <http://www.publicaffairs.ucla.edu/content/luskin-center-innovation>.

SCHOOL OF PUBLIC HEALTH

Linda Rosenstock, Dean

UCLA

16-035 Center for the Health Sciences

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This is an exciting time to study public health. The field is experiencing an unprecedented level of attention as the nation continues to better prepare itself for a variety of threats to its health and security. As a result, many new and exciting opportunities exist for students, faculty members, and graduates.

The field of public health strives to create healthier communities. Where medicine treats the individual, public health looks to the larger community. Those working in public health focus on efforts to assess the health of people and their environments and develop policies and programs to protect people and help them lead healthier lives.

To achieve these goals, public health crosses many of the traditional academic disciplinary boundaries, drawing from medicine, law, public policy, economics, and biology to name a few. Making water safe to drink and air safe to breathe, controlling toxic waste, halting the spread of infectious disease, promoting the advantages of healthy lifestyles, and minimizing violence in our communities are all examples of public health in action. Increasingly public health is called on to help determine which clinical approaches to an individual health problem are best (outcomes research), and to assess and identify disparities in access to healthcare, quality of healthcare, and health status.

The UCLA School of Public Health is among the top public health schools in the country and offers superior public health training and real-world experience. The school's classrooms and laboratories are under the same roof as the UCLA medical, dental, and nursing schools and just steps away from its science facilities and schools of engineering, law, management, and public affairs.

The school is enriched by its location in Los Angeles, where a melting pot of cultures, industries, environmental situations, and urban issues provides unparalleled opportunities for research, teaching, and service. Its location also provides students and faculty members with a unique opportunity to be involved with cutting-edge healthcare issues, as many of the health system changes have origins in Southern California.

School of Public Health students can look forward to working with acclaimed public health experts and innovators. Among its 200 faculty members are 12 members of the prestigious Institute of Medicine, three past presidents of the American Public Health Association, and two past and current presidents of the International Epidemiological Association.

The school's 700 students are among the most talented and promising in the nation and are a culturally diverse group—one of the most diverse of all schools of public health—representing more than 35 countries and nearly every region of the U.S. Graduates continue to make an impressive impact on the field and can be found at the forefront of all major public health efforts.

DEPARTMENTS

The School of Public Health offers graduate programs leading to both academic and professional degrees in five departments. The Department of Biostatistics develops statistical and analytical techniques for public health use. The Department of Community Health Sciences addresses behaviors that prevent disease and enhance health, health problems of high-risk groups (women, children, the aged, the poor, the disadvantaged, and racial and ethnic minorities), health education and promotion, public health policy, community nutrition, and international health. The Department of Environmental Health Sciences elucidates health hazards in the general environment and in the workplace. The Department of Epidemiology is concerned with the nature, extent, and distribution of disease and health in populations. The Department of Health Services deals with the organization, financing, delivery, quality, and distribution of healthcare services. The school also administers interdepartmental degree programs in environmental science and engineering and in molecular toxicology.

See the Curricula and Courses section for further information on each department.

DEGREES AND PROGRAMS

The school offers the following degrees, in addition to an undergraduate minor in Public Health:

Biostatistics (M.S., Ph.D.)
 Environmental Health Sciences (M.S., Ph.D.)
 Environmental Science and Engineering (D.Env.)
 Epidemiology (M.S., Ph.D.)
 Health Services (M.S., Ph.D.)
 Molecular Toxicology (Ph.D.)
 Preventive Medicine and Public Health (M.S.)
 Public Health (M.P.H., M.S., Dr.P.H., Ph.D.)

The M.S. and Ph.D. degrees in Public Health are offered through the Department of Community Health Sciences. New students are not being admitted to the M.S. in Preventive Medicine and Public Health at this time.



The UCLA School of Public Health is among the top public health schools in the country, offering superior public health training and real-world experience.

Articulated Degree Programs

The school offers two articulated degree programs:

Public Health M.P.H./Latin American Studies M.A.
Public Health M.P.H./Medicine M.D.

Concurrent Degree Programs

The school offers seven concurrent degree programs:

Public Health M.P.H./African Studies M.A.
Public Health M.P.H./Asian American Studies M.A.
Public Health M.P.H./Islamic Studies M.A.
Public Health M.P.H./Law J.D.
Public Health M.P.H./Management M.B.A.
Public Health M.P.H./Public Policy M.P.P.
Public Health M.P.H./Social Welfare M.S.W.

PREVENTIVE MEDICINE RESIDENCY PROGRAM

The School of Public Health offers an accredited residency in public health and general preventive medicine, a speciality recognized by the American Board of Preventive Medicine. The residency is designed to prepare qualified physicians for leadership roles in preventive medicine and public health practice, research, and teaching. The program is based on the academic strength of the School of Public Health in conjunction with the Geffen School of Medicine and outstanding UCLA-affiliated agencies such as the Los Angeles County Department of Health Services. For further information, call (310) 206-8531. See <http://www.ph.ucla.edu/pmr/>.

ADMISSION

Admission criteria established by the UCLA Graduate Division require a bachelor's degree from a regionally accredited institution comparable in standard and content to a bachelor's degree from the University of California. A scholastic average of B (3.0 on a 4.0 scale) or better is required—or its equivalent if the letter grade system is not used—for the last 60 semester units or last 90 quarter units of undergraduate study and in any postbaccalaureate study. Further requirements for international students are explained in the Graduate Study section. See <http://www.gdnet.ucla.edu/gasaa/admissions/admisinfo.html>.

Applicants must also submit the application to the centralized Schools of Public Health Application Service (SOPHAS) at <http://www.sophas.org>. For additional admission requirements, see http://www.ph.ucla.edu/app_checklist.html.

DEGREE REQUIREMENTS

Specific degree requirements vary according to the department and program. Refer to *Program Requirements for UCLA Graduate Degrees* at <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>.

RESEARCH CENTERS

The field of public health addresses a wide range of issues, making it a natural for interdisciplinary collaboration. UCLA faculty members and students reach beyond traditional academic boundaries to promote cooperative exchange across disciplines. The following

is a list of interdisciplinary centers sponsored by or associated with the UCLA School of Public Health.

CENTER FOR ADOLESCENT HEALTH PROMOTION

The UCLA/RAND Center for Adolescent Health Promotion conducts studies and develops programs to improve the health and well-being of adolescents, with special emphasis on projects that involve parents of adolescents. The center is a partnership of the School of Public Health, Department of Pediatrics, RAND (a nonpartisan, private, nonprofit research institute that conducts research to improve public policy), and local communities.

The center's multidisciplinary faculty and staff members represent the fields of public health, medicine, social and clinical psychology, sociology, economics, political science, anthropology, education, sampling, statistics, and survey design. It is innovative in its approach to community service, partnering with ethnically and economically diverse communities in Los Angeles County to identify opportunities for it to provide technical support to community groups for program implementation and assessment. In addition, the center has partnerships with the Los Angeles Unified School District, Los Angeles County Department of Health Services, and other local groups. See <http://www.rand.org/health/adol.html>.

CENTER FOR ENVIRONMENTAL GENOMICS

The Center for Environmental Genomics was established in May 2003 in partnership with the Jonsson Comprehensive Cancer Center. The goal of the center is to bring together experts from a variety of fields, including cancer, environmental health, epidemiology, biostatistics, human genetics, pathology, and pharmacology, to investigate the molecular mechanisms by which environmental agents such as air pollutants and radiation interact with genetic predisposing factors to cause disease. A better understanding of these processes paves the way not only for targeted drug therapies, but also for targeted public health efforts to reduce environmental exposures in high-risk populations. Environmental genomics helps prevent diseases rather than waiting to cure them once they have occurred.

CENTER FOR HEALTH POLICY RESEARCH

The Center for Health Policy Research was established in 1994 to apply the expertise of UCLA faculty members and researchers to meet national, state, and local community needs for health policy-related research and information and to accomplish three missions: (1) to conduct research on national, state, and local health policy issues, (2) to provide public service to policymakers and community leaders, and (3) to offer educational opportunities for graduate students and postdoctoral fellows.

Sponsored by the School of Public Health and the School of Public Affairs, the center provides a collaborative health policy research environment for the leading professional schools and academic departments of UCLA. One major project is the California Health Interview Survey (CHIS), one of the largest health surveys in the nation. The center also sponsors major

public service programs supported by extramural grants. See <http://www.healthpolicy.ucla.edu>.

CENTER FOR HEALTH PROMOTION AND DISEASE PREVENTION

Established in July 1991, the Center for Health Promotion and Disease Prevention is a joint endeavor of the School of Public Health and the David Geffen School of Medicine. Faculty members within the Geffen School of Medicine are involved in clinical activities and teaching, especially in the course on doctoring. Within the School of Public Health, they are engaged in teaching and research activities that are wide-ranging and involve studies on the quality of life for men with prostate cancer, manpower requirements for the care of those with HIV infections, community interventions for asthma control in Latino children, and systems for smoking cessation used by physicians caring for Latino patients. The center is also responsible for overseeing the Preventive Medicine Residency Program. See <http://www.ph.ucla.edu/pmr/research.htm>.

CENTER FOR HEALTHIER CHILDREN, FAMILIES, AND COMMUNITIES

The Center for Healthier Children, Families, and Communities (CHCFC) was established at UCLA in 1995 to address some of the most challenging health and social problems facing children and families. The center's mission is to improve society's ability to provide children with the best opportunities for health, well-being, and the chance to assume productive roles within families and communities.

Through a unique interdisciplinary partnership between UCLA departments, schools, and affiliated institutions, including the Schools of Public Health, Medicine, Nursing, Education, Law, and Public Affairs and the Department of Psychology, as well as providers, community agencies, and affiliated institutions, a critical mass of expertise has been assembled to conduct activities in five major areas: (1) child health and social services, (2) applied research, (3) training of health and social service providers, (4) public policy research and analysis, and (5) technical assistance and support to community providers, agencies, and policy-makers. See <http://www.healthychild.ucla.edu>.

CENTER FOR HUMAN NUTRITION

Established in 1996, the Center for Human Nutrition is a joint endeavor of the School of Public Health and the David Geffen School of Medicine. Participating faculty members have their academic appointments in either or both schools. The center brings together faculty members, postdoctoral research fellows, graduate students, and medical students to focus on the roles of nutrition and food in human health and disease and is closely affiliated with the UCLA Clinical Nutrition Research Unit, that focuses on nutrition and cancer prevention.

Programs include basic biological research; nutrition education for various constituencies, including medical, graduate, undergraduate, and postgraduate students; participation in multicenter clinical trials for primary and secondary disease prevention through dietary intervention; and public health and international nutrition. The public health and international

aspects of the programs include focus on nutrition surveillance of populations, nutritional status and food supply in developing and transitional countries, and nutrition and food policy. See <http://cellinteractive.com/ucla/>.

CENTER FOR OCCUPATIONAL AND ENVIRONMENTAL HEALTH

The California State Legislature mandated that the Center for Occupational and Environmental Health (COEH) be formed in 1978, when a group of chemical workers became sterile from exposure to the pesticide DBCP, a known carcinogen and reproductive toxin. With branches in the north and south of the state, COEH trains occupational and environmental health professionals and scientists, conducts research, and provides services through consultation, education, and outreach. The centers constitute the first state-supported institutions to develop new occupational and environmental health leadership in the U.S.

The COEH branch at UCLA is housed in the Center for the Health Sciences and involves the Schools of Public Health, Medicine, and Nursing. Specific COEH programs within the School of Public Health include environmental chemistry, occupational/environmental epidemiology, occupational/environmental medicine, occupational ergonomics, occupational hygiene, toxicology, gene-environment interactions, psychosocial factors in the work environment, occupational health education, and pollution prevention. See <http://www.coeh.ucla.edu>.

CENTER FOR PUBLIC HEALTH AND DISASTERS

The Center for Public Health and Disasters was established in 1997 to address the critical issues faced when a disaster impacts a community. The center promotes interdisciplinary efforts to reduce the health impacts of domestic, international, natural, and human-induced disasters. It facilitates dialog between public health and medicine, engineering, physical and social sciences, and emergency management. This unique philosophy is applied to the education and training of practitioners and researchers, collaborative interdisciplinary research, and service to the community. The multidisciplinary center staff and participating faculty members have backgrounds that include emergency medicine, environmental health sciences, epidemiology, gerontology, health services, social work, sociology, urban planning, and public health.

The center is one of 15 Academic Centers for Public Health Preparedness funded by the Centers for Disease Control. The goal of these national centers is to improve competencies of front-line workers in public health to respond to public health threats. See <http://www.cphd.ucla.edu>.

DIVISION OF CANCER PREVENTION AND CONTROL CENTER RESEARCH

The Division of Cancer Prevention and Control Center Research (DCPCR) is a joint program of the School of Public Health and the David Geffen School of Medicine's Jonsson Comprehensive Cancer Center. Since its inception in 1976, the DCPCR has been a recognized center of cancer prevention and control

research at UCLA, throughout the Los Angeles community, and nationally. The DCPCR conducts rigorous peer-reviewed research in two major program areas—the Healthy and At-Risk Populations Program (<http://www.ph.ucla.edu/hs/healthy.html>) and the Patients and Survivors Program (<http://www.ph.ucla.edu/hs/patients.html>).

The Healthy and At-Risk Populations Program focuses on research in primary prevention and screening/early detection among healthy populations and persons at increased risk for developing cancer. The program's research portfolio includes cancer epidemiology, gene-environment interaction, tobacco control, nutrition and exercise, and breast, cervix, prostate, and colon cancer screenings, as well as risk counseling and genetic testing of high-risk populations. The Patients and Survivors Program has as its major goal the reduction in avoidable morbidity and mortality among adult and pediatric patients with cancer and long-term survivors of cancer. See http://www.ph.ucla.edu/hs/prev_control.html or <http://www.cancer.ucla.edu/Index.aspx?page=122>.

SOUTHERN CALIFORNIA ENVIRONMENTAL HEALTH SCIENCES CENTER

The Southern California Environmental Health Sciences Center (SCEHSC) was established through funding from the National Institute of Environmental Health Sciences (NIEHS). Researchers and professionals from UCLA and the University of Southern California have collaborated to create an interdisciplinary approach to the study and advancement of research in environmental health. As one of the newest of 19 centers across the nation, the SCEHSC primarily focuses on using epidemiologic methods to study effects of the environment on human health, especially with regard to the multiethnic populations of California and the Pacific Rim.

The SCEHSC is organized into an administrative core, four research cores, and three facility cores, with the overall goal to understand how environmental factors affect health and how personal factors modify response. Research cores include exposure assessment, respiratory effects, childhood cancer, adult cancer, and statistical methods, while the service cores include analytical chemistry, molecular biology, biological sample processing, and biostatistics. See <http://hydra.usc.edu/scehsc/default.asp>.

SOUTHERN CALIFORNIA INJURY PREVENTION RESEARCH CENTER

Injuries kill more people under the age of 45 than all other causes of death combined. The Southern California Injury Prevention Research Center (SCIPRC) is one of 10 centers in the U.S. that focus on the problem of intentional (homicide, suicide, abuse) and unintentional (motor vehicle crash, drowning, falls) injuries through three phases of injury control—prevention, acute care, and rehabilitation—addressed through its research, training, and community service components.

The theme of SCIPRC is to research intentional and unintentional injuries among disadvantaged persons and other underserved populations. Highly focused, multidisciplinary community-based research projects

are undertaken in collaboration with professionals from public health, medicine, the social sciences, law, and biomechanics affiliated with UCLA, the University of Southern California, Harbor-UCLA Medical Center, Sharp Memorial Hospital, Rancho Los Amigos Medical Center, California State University (Los Angeles), the Los Angeles County Department of Health Services, the Los Angeles County Department of the Coroner, the California State Department of Health Services, the California Office of Traffic Safety, Cal/OSHA, and the California State Coroners' Association. See <http://www.ph.ucla.edu/sciprc/>.

SOUTHERN CALIFORNIA NIOSH EDUCATION AND RESEARCH CENTER

The Southern California NIOSH Education and Research Center (ERC) is one of 16 multidisciplinary centers in the U.S. supported by the National Institute for Occupational Safety and Health for education and research in the field of occupational health. The center is administratively housed in the Department of Environmental Health Sciences and supports academic programs in occupational medicine at UCLA and UCI, occupational health nursing, and industrial hygiene at UCLA.

For these programs the center provides student support (fees and stipends for U.S. citizens or permanent residents) and infrastructure support. The center supports approximately 40 graduate students in the field of occupational health. It also supports a continuing education and outreach program, hazardous substances training for hazardous waste workers and industrial hygiene students, and a Pilot Project Research Training Program for ERC trainees. The continuing education program is primarily for professionals in the occupational health field and covers many topics in industrial hygiene, occupational health nursing, occupational medicine, occupational safety, ergonomics, and environmental areas. See <http://www.ph.ucla.edu/erc/>.

SOUTHERN CALIFORNIA PARTICLE CENTER AND SUPERSITE

The Southern California Particle Center and Supersite (SCPCS) was established in 1999 through funding from the U.S. Environmental Protection Agency (EPA) and California Air Resources Board (ARB) to study the nature and health effects of airborne particulate matter (PM). The SCPCS is one of five particulate research centers awarded grants as part of an EPA effort to learn more about the health problems caused by exposure to particle pollution. Based in the School of Public Health and the Institute of the Environment, the center includes faculty members from throughout UCLA, as well as researchers from the University of Southern California, University of California campuses at Riverside and Irvine, California Institute of Technology, and Rancho Los Amigos Medical Center.

The major objective of the SCPCS is to identify and conduct the highest priority research for PM to ensure protection of the public health. The center seeks to better determine the sources of particulate pollution, probe the chemical nature of particles, and investigate the health effects of breathing particulates. The SCPCS has created a structure to ensure integration of

research and to create a research dynamic where findings facilitate new research that deepens understanding of the mechanisms of particle-related toxicity. See <http://www.scpcs.ucla.edu>.

UCLA KAISER PERMANENTE CENTER FOR HEALTH EQUITY

Academic studies and current events have converged to highlight the magnitude of potentially preventable health disparities among various population groups, and the urgency of addressing these disparities. The UCLA Kaiser Permanente Center for Health Equity identifies, investigates, and addresses these differences in health status and disease burden. A key feature of the center is its heavy focus on community-based intervention research to mitigate observed disparities.

The center aims to advance understanding of health disparities across the lifespan and to foster multidisciplinary research to improve the health of underserved communities. With focus on Los Angeles County, the center facilitates community and academic partnerships in research, trains new investigators in health disparities research, and assists community partners in implementing effective programs and advocating for effective policies to reduce disparities. The center also endeavors to erode the barriers preventing more effective collaboration with local health departments and other key community partners engaged in the practice of public health. It is a collaborative center without walls that includes associates from academia, government, foundations, and private/nonprofit organizations. See <http://healthequity.ucla.edu>.

SCHOOL OF THEATER, FILM, AND TELEVISION

Teri E. Schwartz, Dean

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The School of Theater, Film, and Television consists of the Department of Theater and the Department of Film, Television, and Digital Media, recognized national centers for higher education in production and performance as well as history, theory, and criticism.

Whether exploring the ancient and sacred roots of theater or the latest secular rituals enacted by popular film, creating a dramatic character for the bare stage or a dramatic narrative on screen, writing scripts or scholarly articles, or making digital movies or designing websites, all students in the school study both the aesthetics and cultural significance of theater, film, and television.

Through an intensive, multidiscipline curriculum, the school defines the inherent differences of theater, film,

television, and new media, affirms their similarities, and encourages their interaction. As expressive art forms, modes of communication, and cultural interventions, theater, film and television, and digital media have in common the ability and power to reflect and shape our perception of a complex, diverse, and ever-changing world. We believe—as artists and scholars—that we have an obligation to reflect on this power and to use it responsibly.

Situated in the diverse and culturally rich environment of Los Angeles and drawing on the many resources of the campus at large, including UCLA Live, Geffen Playhouse, and UCLA Film and Television Archive, the school provides the ideal setting for students to engage in the study and practice of art forms essential to a healthy and dynamic society.

DEPARTMENTS AND PROGRAMS

The Department of Theater and the Department of Film, Television, and Digital Media are essential components of the rich intellectual, cultural, and professional life of UCLA. Depending on the degree involved, the school's programs are either strongly professional in nature or oriented toward advanced scholarly study and research in an atmosphere that recognizes and often draws on studio practice.

Students in undergraduate courses receive a broadly based, liberal education within the context of either theater or film and television.

The Master of Fine Arts degree programs prepare talented and highly motivated students for careers in the worlds of theater, film, television, and digital production. The M.A. and Ph.D. programs engage students in the critical study and research of these media, including their history, aesthetics, and theory, and prepare students for advanced research within the context of college and university teaching, as well as for writing and research in a variety of media-related professions.

In the Department of Theater, approximately 300 undergraduate and 100 graduate students interact with over 40 faculty members, outstanding guests of national and international standing, and a professional staff of 35 in an exciting artistic community of theater production and study. The theater and performance studies program offers C.Phil. and Ph.D. degrees for the advanced scholarly study of theater and performance. Resources include the four theaters of the Macgowan Hall complex, with the latest technologies needed for the creation, control, and integration of scenery, lighting, and sound. Specializations in the Master of Fine Arts program include acting, design, directing, and playwriting.

The Department of Film, Television, and Digital Media includes both production and critical studies programs, with approximately 330 graduate and 75



The School of Theater, Film, and Television is recognized for education in production and performance as well as history, theory, and criticism of both established and new digital media.

undergraduate students. The 50 faculty members include leading scholars as well as members of the Los Angeles and international film and television professional communities. In production, graduate specializations are offered in the areas of film and television production, screenwriting, animation, and the producers program. The cinema and media studies program offers M.A. and Ph.D. degrees for the advanced scholarly study of film and television. The department's resources in Melnitz Hall include three sound stages, three television studios, extensive editing, scoring, and viewing facilities, a complete animation laboratory for both traditional and computer-generated animation, and a laboratory and research facility for digital media.

The M.A. and Ph.D. programs are supported by the collections of the University's libraries and the UCLA Film and Television Archive, the largest in the U.S. outside the Library of Congress. This archive forms a unique and priceless resource for research and classroom instruction. M.A. and Ph.D. faculty members and students also participate in various campus organized research units.

Students interested in obtaining instructional credentials for California elementary and secondary schools should consult the Department of Education, 1009 Moore Hall, (310) 825-8328.

DEGREES

The school offers the following degrees, in addition to undergraduate minors in Film, Television, and Digital Media and in Theater:

Film and Television (B.A., M.A., M.F.A., C.Phil., Ph.D.)

Individual Field (B.A.)

Moving Image Archive Studies (M.A.)

Theater (B.A., M.A., M.F.A.)

Theater and Performance Studies (C.Phil., Ph.D.)

UNDERGRADUATE ADMISSION

In addition to the University of California undergraduate application, departments in the School of Theater, Film, and Television require applicants to submit additional supporting materials. Information on departmental requirements is available at <http://www.tft.ucla.edu>. The annual deadline date for applications is November 30 for admission in the following Fall Quarter.

UNDERGRADUATE DEGREE REQUIREMENTS

School of Theater, Film, and Television students must meet three types of requirements for the Bachelor of Arts degree:

1. University requirements
2. School requirements
3. Department requirements

UNIVERSITY REQUIREMENTS

The University of California has two requirements that undergraduate students must satisfy in order to graduate: (1) Entry-Level Writing or English as a Second

Language and (2) American History and Institutions. See Degree Requirements in the Undergraduate Study section for details.

School of Theater, Film, and Television students enrolled in English as a Second Language 33A, 33B, 33C must take each course for a letter grade.

SCHOOL REQUIREMENTS

The School of Theater, Film, and Television has seven requirements that must be satisfied for the award of the degree: unit, scholarship, academic residence, writing, foreign language, literature, and general education.

UNIT REQUIREMENT

Students must complete for credit, with a passing grade, no less than 180 units and no more than 216 units, of which at least 64 units must be upper division courses (numbered 100 through 199). No more than 8 units of freshman seminars and/or 8 units of 300-level courses may be applied toward the degree. Credit for upper division tutorials numbered 195 through 199 is limited to a maximum of 8 units in a single term and a maximum of 32 units total for a letter grade.

SCHOLARSHIP REQUIREMENT

A 2.0 (C) average is required in all work attempted at the University of California, exclusive of courses in UCLA Extension and those graded Passed/Not Passed. A 2.0 (C) average is also required in all upper division courses in the major taken at the University, as well as in all courses applied toward the general education and University requirements.

School of Theater, Film, and Television Structure of a Degree

University Requirements

1. Entry-Level Writing or English as a Second Language
2. American History and Institutions

School Requirements

1. Unit
2. Scholarship
3. Academic Residence
4. Writing Requirement
 - Writing I
 - Writing II
5. Foreign Language
6. Literature
7. General Education
 - Foundations of Arts and Humanities
 - Foundations of Society and Culture
 - Foundations of Scientific Inquiry

Department Requirements

1. Preparation for the Major
2. The Major

Courses that do not satisfy specific University, school, or department requirements are referred to as electives and can be used to meet the minimum unit requirement for graduation.

ACADEMIC RESIDENCE REQUIREMENT

Students are in residence while enrolled and attending classes at UCLA as a major in the School of Theater, Film, and Television. Of the last 45 units completed for the bachelor's degree, 35 must be earned in residence in the School of Theater, Film, and Television. No more than 18 of the 35 units may be completed in UCLA Summer Sessions.

Courses in UCLA Extension (either class or correspondence) may not be applied toward any part of the residence requirements.

WRITING REQUIREMENT

Students must complete the University's Entry-Level Writing or English as a Second Language (ESL) requirement prior to completing the school writing requirement.

Students admitted to the school are required to complete a two-term writing requirement—Writing I and Writing II. Two courses in English composition are required for graduation. Both courses must be taken for letter grades, and students must receive grades of C or better (C– grades are not acceptable).

Writing I. The Writing I requirement must be satisfied within the first three terms of enrollment by completing English Composition 3 or 3H with a grade of C or better (C– or a Passed grade is not acceptable).

The Writing I requirement may also be satisfied by scoring 4 or 5 on one of the College Board Advanced Placement Tests in English or a combination of a score of 720 or higher on the SAT Reasoning Test Writing Section and superior performance on the English Composition 3 Proficiency Examination.

Students whose native language is not English may satisfy the Writing I requirement by completing English as a Second Language 36 with a grade of C or better (C– or a Passed grade is not acceptable). Admission into the course is determined by completion of English as a Second Language 35 with a passing grade or proficiency demonstrated on the English as a Second Language Placement Examination (ESLPE).

Writing II. The Writing II requirement must be satisfied within the first six terms of enrollment by completing one course from a faculty-approved list of Writing II courses published in the *Schedule of Classes* at <http://www.registrar.ucla.edu/soc/writing.htm> and available in the Student Services Office. The course must be completed with a grade of C or better (C– or a Passed grade is not acceptable).

A Writing II course used to meet this requirement may not be applied toward a foundational area under general education or toward the literature requirement.

Transfer students with 90 or more units who have completed the Intersegmental General Education Transfer Curriculum (IGETC) will have satisfied the Writing I and Writing II requirements.

FOREIGN LANGUAGE REQUIREMENT

Students may meet the foreign language requirement by (1) scoring 3, 4, or 5 on the College Board Advanced Placement (AP) foreign language examination in French, German, or Spanish, or scoring 4 or 5 on the AP foreign language examination in Latin, (2)

presenting a UCLA foreign language proficiency examination score indicating competency through level three, or (3) completing one college-level foreign language course equivalent to level three or above at UCLA with a grade of Passed or C or better.

For transfer students from California community colleges, completion of the Intersegmental General Education Transfer Curriculum (IGETC) does not fulfill the school foreign language requirement. Students need to complete level three or above of a foreign language course at the community college with a grade of Passed or C or better to complete the requirement.

LITERATURE REQUIREMENT

Three courses (12 units minimum) in literature are required, at least one of which must be upper division. A school-approved literature course taken in the original language can fulfill this requirement. A list of courses that satisfy the requirement is available in the Student Services Office. A course taken to meet the Writing II requirement may not also be applied toward the literature requirement.

GENERAL EDUCATION REQUIREMENTS

General education (GE) is more than a checklist of required courses. It is a program of study that (1) reveals to students the ways that research scholars in the arts, humanities, social sciences, and natural sciences create and evaluate new knowledge, (2) introduces students to the important ideas and themes of human cultures, (3) fosters appreciation for the many perspectives and the diverse voices that may be heard in a democratic society, and (4) develops the intellectual skills that give students the dexterity they need to function in a rapidly changing world.

This entails the ability to make critical and logical assessments of information, both traditional and digi-

School of Theater, Film, and Television General Education Requirements

Foundations of the Arts and Humanities

Literary and Cultural Analysis
Philosophical and Linguistic Analysis
Visual and Performance Arts Analysis
and Practice

..... 5 Courses

No more than two courses from any one subgroup.

Total = 25 units minimum

Foundations of Society and Culture

Historical Analysis 1 Course
Social Analysis 1 Course
Third course from either subgroup 1 Course

Total = 15 units minimum

Foundations of Scientific Inquiry

Life Sciences 1 Course
Physical Sciences 1 Course

Total = 8 units minimum

Total GE 10 Courses/48 Units Minimum

A course taken to meet the Writing II requirement may not also be applied toward a GE requirement.

tal; deliver reasoned and persuasive arguments; and identify, acquire, and use the knowledge necessary to solve problems.

Requirements for Students Who Entered Fall Quarter 2004 and Thereafter

FOUNDATIONS OF KNOWLEDGE

General education courses are grouped into three foundational areas: Foundations of the Arts and Humanities, Foundations of Society and Culture, and Foundations of Scientific Inquiry.

Ten courses (48 units minimum) are required. A course taken to meet the Writing II requirement may not also be applied toward a GE requirement.

Courses listed in more than one category can fulfill GE requirements in only one of the cross-listed categories. GE courses may not be applied toward major requirements.

Foundations of the Arts and Humanities. Five 5-unit courses, with no more than two from any one subgroup:

Literary and Cultural Analysis
Philosophical and Linguistic Analysis
Visual and Performance Arts Analysis and Practice

The aim of courses in this area is to provide perspectives and intellectual skills necessary to comprehend and think critically about our situation in the world as human beings. In particular, the courses provide the basic means to appreciate and evaluate the ongoing efforts of humans to explain, translate, and transform their diverse experiences of the world through such media as language, literature, philosophical systems, images, sounds, and performances. The courses introduce students to the historical development and fundamental intellectual and ethical issues associated with the arts and humanities and may also investigate the complex relations between artistic and humanistic expression and other facets of society and culture.

Foundations of Society and Culture. Three 5-unit courses, one from each subgroup and a third course from either subgroup:

Historical Analysis
Social Analysis

The aim of courses in this area is to introduce students to the ways in which humans organize, structure, rationalize, and govern their diverse societies and cultures over time. The courses focus on a particular historical question, societal problem, or topic of political and economic concern in an effort to demonstrate how issues are objectified for study, how data is collected and analyzed, and how new understandings of social phenomena are achieved and evaluated.

Foundations of Scientific Inquiry. Two courses (8 units minimum), one from each subgroup:

Life Sciences
Physical Sciences

The aim of courses in this area is to ensure that students gain a fundamental understanding of how scientists formulate and answer questions about the operation of both the physical and biological world. The courses also deal with some of the most important

issues, developments, and methodologies in contemporary science, addressing such topics as the origin of the universe, environmental degradation, and the decoding of the human genome. Through lectures, laboratory experiences, writing, and intensive discussions, students consider the important roles played by the laws of physics and chemistry in society, biology, Earth and environmental sciences, and astrophysics and cosmology.

Foundations Course Lists. Creating and maintaining a general education curriculum is a dynamic process; consequently, courses are frequently added to the list. For the most current list of approved courses that satisfy the Foundations of Knowledge GE plan, consult an academic counselor or see <http://www.registrar.ucla.edu/ge/>.

Requirements for Students Who Entered Prior to Fall Quarter 2004

For the approved list of courses, see <http://www.registrar.ucla.edu/ge/>.

Reciprocity with Other UC Campuses

Students who transfer to UCLA from other UC campuses or who change their major from another UCLA school or College and have met all GE requirements prior to attending UCLA or changing their UCLA major are not required to complete the School of Theater, Film, and Television GE requirements. Written verification from the dean at the other UC campus or UCLA College or school is required. Verification letters should be sent to Director of Student Services, School of Theater, Film, and Television, 103 East Melnitz Building, UCLA, Box 951622, Los Angeles, CA 90095-1622.

Intersegmental General Education Transfer Curriculum

Transfer students from California community colleges have the option to fulfill UCLA lower division GE requirements by completing the Intersegmental General Education Transfer Curriculum (IGETC) prior to transfer. The curriculum consists of a series of subject areas and types of courses which have been agreed on by the University of California and the California community colleges. Although GE or transfer core courses are degree requirements rather than admission requirements, students are advised to fulfill them prior to transfer. The IGETC significantly eases the transfer process, as all UCLA GE requirements are fulfilled when students complete the IGETC courses. Students who select the IGETC must complete it entirely before enrolling at UCLA. Otherwise, they must fulfill the School of Theater, Film, and Television GE requirements.

DEPARTMENT REQUIREMENTS

School of Theater, Film, and Television departments generally set two types of requirements that must be satisfied for the award of the degree: (1) Preparation for the Major (lower division courses) and (2) the Major (upper division courses). Preparation for the Major courses should be completed before beginning upper division work.

PREPARATION FOR THE MAJOR

A major requires completion of a set of courses known as Preparation for the Major. Each department sets its own Preparation for the Major requirements; see the Curricula and Courses section of this catalog.

THE MAJOR

A major is composed of no less than 56 units, including at least 36 units of upper division courses. The Theater major includes both lower and upper division courses. Those listed under Preparation for the Major (lower division) must be completed before upper division major work is undertaken. The Film and Television major requires upper division work only.

Students must complete their major with a scholarship average of at least a 2.0 (C) in all courses in order to remain in the major. Each course in the school must be taken for a letter grade.

As changes in major requirements occur, students are expected to satisfy the new requirements insofar as possible. Hardship cases should be discussed with the department adviser, and petitions for adjustment should be submitted to the dean of the school when necessary.

Any department offering a major in the School of Theater, Film, and Television may require a general final examination.

Double Majors. Double majors in the School of Theater, Film, and Television and other academic units are not permitted.

POLICIES AND REGULATIONS

Degree requirements are subject to policies and regulations, including the following:

STUDENT RESPONSIBILITY

Students should take advantage of academic support resources, but they are ultimately responsible for keeping informed of and complying with the rules, regulations, and policies affecting their academic standing.

STUDY LIST

The Study List is a record of classes that a student is taking for a particular term. Each term the student Study List must include from 12 to 19 units. The school has no provision for part-time enrollment. After the first term, students may petition to carry more than 19 units (up to 22 units maximum) if they have an overall grade-point average of 3.0 (B) or better and have attained at least a B average in the preceding term with all courses passed. The petitions must be filed and approved by the Student Services Office no later than the end of the third week of instruction.

MINIMUM PROGRESS

Students are expected to complete satisfactorily at least 36 units during any three consecutive terms in residence; they are placed on probation if they fail to pass these units. They are subject to dismissal if they fail to pass at least 32 units in three consecutive regular terms in residence.

CHANGING A MAJOR

Students in good academic standing who wish to change their major may petition to do so provided they can complete the new major within the 216-unit limit. Petitions must be submitted to and approved by the department or committee in charge of the new major. Admission to certain majors may be closed or restricted; changes are normally not permitted if students are on probation or have begun their last term.

Due to curriculum changes, students in the Theater major are no longer allowed to change their major to Film and Television at the end of their sophomore year.

CONCURRENT ENROLLMENT

Enrollment at another institution or UCLA Extension while enrolled at UCLA is not permitted except in extraordinary circumstances. No credit is given for courses taken concurrently elsewhere without the approval of the school.

CREDIT LIMITATIONS

The following credit limitations apply to all undergraduate students enrolled in the school:

Advanced Placement Tests. Credit earned through the College Board Advanced Placement (AP) Tests may be applied toward the school and general education requirements. If students take the equivalent UCLA course, unit credit for such duplication is deducted before graduation.

Graduate Courses. Undergraduate students who wish to take graduate courses (200 level) for credit toward the bachelor's degree must petition for advance approval of the department chair and the dean of the school and must meet the specific qualifications. Courses numbered in the 400 and 500 series are not open for credit to undergraduate students.

UCLA Extension. Extension courses with the prefix X on those numbered in the 1 through 199, 200, 300, 400, or 800 series may not be applied toward the degree.

COUNSELING SERVICES

The School of Theater, Film, and Television offers advising, program planning in the major and general education requirements, and individual meetings with departmental counselors, including a yearly degree check. Prior to registration and enrollment in classes, each new student is assigned to a counselor in the major department. For further counseling information, contact the Student Services Office, School of Theater, Film, and Television, 103 East Melnitz Building, (310) 206-8441.

HONORS

School of Theater, Film, and Television undergraduate students who achieve scholastic distinction may qualify for the following honors and programs:

DEAN'S HONORS

Dean's Honors are awarded each term to students who complete their program of study with distinction according to criteria established by the dean of the school.

LATIN HONORS

Latin Honors are awarded at graduation to students with superior grade-point averages. To be eligible, students must have completed 90 or more units for a letter grade at the University of California. The levels of honors and the requirements for each level are *summa cum laude*, an overall average of 3.948; *magna cum laude*, 3.879; *cum laude*, 3.772. The minimum GPAs required are subject to change on an annual basis. Required GPAs in effect in the graduating year determine student eligibility. See the *Schedule of Classes* for the most current calculations of Latin honors.

DEPARTMENTAL SCHOLAR PROGRAM

Exceptionally promising juniors or seniors may be nominated as Departmental Scholars to pursue bachelor's and master's degree programs simultaneously. Qualifications include completion of 24 courses (96 quarter units) at UCLA or the equivalent at a similar institution, the requirements in preparation for the major, and eligibility to participate in the school honors program. Students must also have at least one term of coursework remaining at UCLA. To obtain both the bachelor's and master's degrees students must be provisionally admitted to the Graduate Division, fulfill requirements for each program, and maintain a minimum B average. No course may be used to fulfill requirements for both degrees. Interested students should consult their department well in advance of application dates for graduate admission. Contact the Student Services Office in 103 East Melnitz Building for details.

GRADUATE STUDY

The advanced degree programs offered in the School of Theater, Film, and Television provide graduate students with unique research opportunities when combined with special resources, such as the Young Research Library, UCLA Film and Television Archive, Geffen Playhouse, special collections of the Arts Library, and the University's exhibition and performance halls.

A program in teaching is offered by the Graduate School of Education and Information Studies in each of the areas.

Fellowships, grants, and assistantships are available through the dean of the Graduate Division. Donor awards are available through the School of Theater, Film, and Television.

ADMISSION

In addition to requiring that applicants hold a bachelor's degree from an accredited U.S. institution or an equivalent degree of professional title from an international institution, each department in the school has limitations and additional requirements. Detailed information can be found in *Program Requirements for UCLA Graduate Degrees* at <http://www.gdnet.ucla.edu/gasaa/library/pgnrqintro.htm>.

For information on the proficiency in English requirements for international graduate students, see Graduate Admission in the Graduate Study section of this catalog.

DEGREE REQUIREMENTS

Requirements to fulfill each degree objective vary according to the degree and the department. For complete degree requirements, see *Program Requirements for UCLA Graduate Degrees* at <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>.



Curricula and Courses

COURSE LISTINGS

Departments and programs are listed alphabetically, with the College or school administering the program identified in the program heading. Curricula and courses are listed under each program. Every effort has been made to ensure the accuracy of the information presented. However, all courses, course descriptions, instructor designations, and curricular degree requirements described herein are subject to change or deletion without notice. Changes to course descriptions and undergraduate programs are posted online in the catalog updates pages at <http://www.registrar.ucla.edu/catalog/updates/>. For the most current course offerings by term, see the *Schedule of Classes* at <http://www.registrar.ucla.edu/schedule/>.

For a complete outline of graduate degree requirements, see *Program Requirements for UCLA Graduate Degrees* available on the Graduate Division website at <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintno.htm>.

Undergraduate Course Numbering

Undergraduate courses are classified as lower division and upper division. **Lower division courses (numbered 1-99)** are often surveys offering preliminary introductions to the subject field. They are designed primarily for freshmen and sophomores, though upper division students may enroll for unit and grade credit. Lower division courses may not be applied toward graduate degrees.

Upper division courses (numbered 100-199) are open to all students who have met the requisites indicated in departmental requirements or the course description. Preparation generally includes at least one lower division course in the subject or two years of college work. With approval of the major department, graduate students may take 100-series courses toward satisfaction of master's degree requirements.

Undergraduate Seminars and Tutorials

Fiat Lux freshman seminars (numbered 19) are taught by faculty in areas of their expertise. They introduce freshmen to topics of intellectual importance and enable them to participate in critical discussion of these topics with a small group of peers. The seminar series takes its name from the motto of the University of California: *Fiat Lux—Let There be Light!*

Sophomore seminars (numbered 88) are departmentally sponsored courses designed to provide sophomores the opportunity to participate in small seminars to enhance writing, verbal, and analytical skills.

Honors seminars and tutorials (numbered 89/189 and 89HC/189HC) are primarily

designed for students in the College Honors Program. They are adjunct to lecture courses and explore lecture topics in more depth through supplemental readings, papers, or other activities.

Student Research Program tutorials (numbered 99) offer students entry-level research experiences. Students serve as apprentices working with an individual faculty member or in a research group. Students are graded P/NP based on the number of hours they participate in research.

Upper division seminars (numbered 190-194) are small seminars with between 15 and 20 students that focus on research practice or issues. Many are designed to be taken along with a tutorial course in the 195-199 series.

Upper division tutorial courses (numbered 195-199) offer advanced opportunities for research through faculty-supervised internships and apprenticeships as well as honors research, directed research, and senior projects. Courses are structured by the instructor and student at the time they are initiated and are open to juniors (with a minimum 3.0 grade-point average in the major field), seniors, and graduate students. To enroll, students submit a contract (available online through MyUCLA) and have it approved by both the instructor and department chair.

Note: Courses numbered 19, 89, 89HC, 99, 189, and 189HC are not listed in the print catalog. For course descriptions, see online catalog updates at <http://www.registrar.ucla.edu/catalog/updates/>.

Graduate Course Numbering

Graduate courses numbered 200-299 are generally open only to graduate students who have completed basic undergraduate courses in the subject. Courses and seminars in the 200 series can fulfill the minimum graduate course requirement for any advanced degree.

With departmental and instructor consent, and subject to requirements in the appropriate College or school, undergraduate students may enroll in 200-series courses for unit credit toward the bachelor's degree. If students take a graduate course as an undergraduate, they may not apply that same course later toward a higher degree.

Graduate courses numbered 300-399 are highly specialized teacher-training courses that are not applicable toward University minimum requirements for graduate degrees. They are acceptable toward the bachelor's degree only at the discretion of the individual College or school.

Graduate courses numbered 400-499 are designed for professional programs leading to graduate degrees other than the M.A., M.S., and Ph.D. These courses may not be used to satisfy minimum graduate course requirements

for the M.A. or M.S. degree but may apply as electives.

Individual study and research courses (numbered 500-599) are reserved for advanced study and are not open to undergraduate students. Courses are numbered as follows: 595/596, directed individual study or research; 597, preparation for master's comprehensive or doctoral qualifying examination; 598, master's thesis research and preparation; and 599, doctoral dissertation research and preparation. Courses numbered 501 are not individual study and research but are cooperative programs held in conjunction with USC. See individual departmental listings for specific limitations on 500-series courses.

Note: These definitions do not apply to the School of Law, which maintains its own course numbering system.

Temporary Course Offerings

Courses that are temporary in nature, such as one-term-only or one-year-only are not listed in the catalog. Their descriptions can be found in the online *Schedule of Classes*.

Concurrent and Multiple Listings

Concurrently scheduled courses (identified by a capital C before the course number) are pairs of courses, usually within a single department or program, for which credit is given at two levels—undergraduate and graduate. Concurrently scheduled courses are offered at the same time and place with the same instructor, but work levels and performance standards are evaluated differently for students at each level. (Concurrently scheduled courses as described here should not be confused with concurrent courses offered through UCLA Extension.)

Multiple-listed courses (identified by a capital M before the course number) are courses offered jointly by more than one department. They need not have identical course numbers, but all other aspects of the course must be the same, such as title, units, requisites, format, and level. For example, Language in Culture is offered by the Department of Anthropology (Anthropology M140) and the Department of Linguistics (Linguistics M146). The course is listed under both departments.

UCLA Extension Courses

In general, students may not attend UCLA Extension for degree credit if they are enrolled in UCLA regular session at the same time. However, certain Extension courses (numbered 1-199), prefixed by XL or XLC in the Extension course listings, yield credit toward the bachelor's degree. Graduate students may petition to apply up to two XLC courses toward the master's degree. For more details, see Concurrent Enrollment in the Academic Policies section of this catalog.

AFRICAN STUDIES

*Interdepartmental Program
College of Letters and Science*

UCLA
10373 Bunche Hall
Box 951487
Los Angeles, CA 90095-1487

(310) 206-6571
fax: (310) 206-3555
e-mail: undergrads@international.ucla.edu
(*undergraduate*)
idpgrads@international.ucla.edu (*graduate*)
http://www.international.ucla.edu/idps/

Ghislaine E. Lydon, Ph.D., *Chair*

Faculty Administrative Committee

Edward A. Alpers, Ph.D. (*History*)
Andrew Apter, Ph.D. (*Anthropology, History*)
Judith A. Carney, Ph.D. (*Geography*)
Jacqueline Cogdell DjeDje, Ph.D. (*Ethnomusicology*)
Sondra Hale, Ph.D. (*Anthropology, Women's Studies*)
Robert A. Hill, M.Sc. (*History*)
Ghislaine E. Lydon, Ph.D. (*History*)
Charlotte G. Neumann, M.D. (*Community Health
Sciences*)
Allen F. Roberts, Ph.D. (*French and Francophone
Studies, World Arts and Cultures*)
Dominic R. Thomas, Ph.D. (*Comparative Literature,
French and Francophone Studies*)
Katrina D. Thompson, Ph.D. (*Applied Linguistics*)

Scope and Objectives

The basic objective of the African Studies Program is an intellectual one—to provide interested students with the opportunity to engage in intensive study and research on Africa on an interdisciplinary basis. The program offers high quality African area courses in a wide range of fields, including the social sciences, humanities, and professional fields. While the Master of Arts is not a professional degree, students may enroll in courses in several professional schools on campus. A concurrent degree program is also offered where students can work sequentially for the M.A. in African Studies and the Master of Public Health (M.P.H.).

Academic flexibility draws many students to the program. Because there are more than 50 active faculty members on campus with African interest and experience in many disciplines, students have multiple options to design individualized programs.

The program also offers the undergraduate African Studies minor that is designed primarily for students who plan to live and work in Africa or who are interested in government and public service careers involving African affairs. Students who plan to pursue graduate work related to Africa are also encouraged to add the minor to their major field of study.

Undergraduate Study

African Studies Minor

The African Studies minor can be taken jointly only with work toward a bachelor's degree, normally in combination with one of the following fields: Afro-American studies, anthropology, art history, comparative literature, English, ethno-

musicology, film and television, French, geography, Germanic languages, history, linguistics, Near Eastern languages and cultures, political science, theater, or world arts and cultures. The faculty adviser certifies completion of the program.

To enter the minor, students must have an overall grade-point average of 2.0 or better and have completed 45 units and a three-term sequence of an African language prior to or concurrent with coursework in the minor. Languages may include Hausa, Swahili, Wolof, Zulu, and Afrikaans or, by petition to the academic counselor, another African language. Students must file a petition and meet with the academic counselor, 10373 Bunche Hall, (310) 206-6571.

Required Lower Division Courses (9 to 10 units): History M10A, 10B (or 10BH or 10BW).

Required Upper Division Courses (20 to 25 units): Three courses selected from a list of designated core courses that offer exclusively African content and two courses from either the core list and/or an expanded list that includes courses with African content of at least 50 percent (consult the faculty adviser for recommended African-related courses). Students may petition to apply other topical courses when taught with an African content of 50 percent or more. A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major or minor requirements in another department or program.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

For more information, contact the Academic Counselor, 10373 Bunche Hall (310-206-6571).

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The African Studies Program offers the Master of Arts (M.A.) degree in African Studies. A concurrent degree program (African Studies M.A./Public Health M.P.H.) is also offered.

African Studies

Upper Division Course

191A. Variable Topics Research Seminars: African Studies. (4) Seminar, three hours. Research seminar on selected topics in African studies. Reading, discussion, and development of culminating project. May be repeated for credit with topic change. P/NP or letter grading.

Graduate Courses

201A. Africa and Disciplines. (4) (Formerly numbered 201.) Seminar, four hours. Major intellectual trends and currents in development of African studies. Emphasis on appreciation of multidisciplinary background of African studies and relevant interpretive strategies. Central questions, critical issues, and current problems affecting Africa. Content varies each year. Letter grading.

201B. Africa and Professions. (4) Seminar, three hours. Exploration of key contributions and debates of academic disciplines in African studies, with emphasis on professional dimension. Review of discipline's literature, resources, career opportunities, and professionals themselves. Letter grading.

M229B. Africana Bibliography and Research Methods. (4) (Same as Information Studies M229B.) Discussion, four hours. Problems and techniques of research methodologies related to Africana studies. Emphasis on relevant basic and specialized reference materials, using full range of available information resources, including library collections of books, serials, and computerized databases. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

596. Directed Individual Study or Research. (2 to 8) Tutorial, to be arranged. Limited to graduate African studies students. May be repeated, but only 4 units may be applied toward minimum graduate course requirement. S/U or letter grading.

597. Preparation for M.A. Comprehensive Examination. (4) Tutorial, to be arranged. Limited to graduate African studies students. Normally taken only during term in which student is being examined. May not be applied toward minimum graduate course requirement. S/U grading.

598. Research for and Preparation of M.A. Thesis. (4) Tutorial, to be arranged. Limited to graduate African studies students. Normally taken only during term in which student intends to complete M.A. thesis. May not be applied toward minimum graduate course requirement. S/U grading.

AFRO-AMERICAN STUDIES

*Interdepartmental Program
College of Letters and Science*

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Brenda Stevenson, Ph.D., *Chair*

Faculty Administrative Committee

Andrew Apter, Ph.D. (*Anthropology, History*)
Scot D. Brown, Ph.D. (*History*)
Kenneth E. Burrell, B.A. (*Ethnomusicology*)
Devon Carbedo, J.D. (*Law*)
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Cheryl I. Harris, J.D., (*Law*)
Darnell M. Hunt, Ph.D. (*Sociology*)
Edmond Keller, Ph.D. (*Political Science*)
Cheryl L. Keyes, Ph.D. (*Ethnomusicology*)
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Vickie M. Mays, Ph.D. (*Health Services, Psychology*)
 Mignon R. Moore, Ph.D. (*Sociology*)
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 Brenda Stevenson, Ph.D. (*History*)
 Katrina D. Thompson, Ph.D. (*Applied Linguistics*)
 E. Victor Wolfenstein, Ph.D. (*Political Science*)
 Antronette K. Yancey, M.D., Ph.D. (*Health Services*)
 Richard A. Yarborough, Ph.D. (*English*)

Scope and Objectives

The Afro-American Studies Interdepartmental Program offers a Bachelor of Arts degree, an undergraduate Afro-American Studies minor, a Master of Arts degree, and a concurrent degree program (Afro-American Studies M.A./Law J.D.). A major or minor in this field provides a broadening of cultural experiences and perspectives for those seeking more information about African Americans and the African diaspora. Career-wise, all students profit from Afro-American studies courses in an era when employers and academic institutions are actively seeking those with multicultural and interdisciplinary skills and backgrounds.

The fundamental goal of the Afro-American Studies curriculum is to provide students with a comprehensive and multidisciplinary introduction to the crucial sociocultural and social justice issues facing African Americans and their counterparts in other areas of the African diaspora today. The curriculum is designed to meet this goal in two primary ways. First, it provides an interdisciplinary exposure to particular features of the African American experience. Core courses offer an in-depth understanding of historical, anthropological, sociological, psychological, economic, and political aspects of African America. The curriculum also provides opportunities to study the literary, musical, and artistic heritage of peoples of African descent. Second, students analyze key issues through additional courses that bring to bear concepts, theories, and methods of traditional academic disciplines in areas such as cultural analysis and production, social justice, and public policy. Students may also do individualized study with a professor and/or an internship for course credit.

Undergraduate Study

Afro-American Studies B.A.

The Afro-American Studies B.A. program is periodically revised; check with the program office for changes and updates.

Preparation for the Major

Required: History M10A and the courses listed in one of the following concentrations, plus three courses from at least two additional concentrations (requisites for the courses listed must be completed before enrolling in a given course; this is especially important for the quantitative courses in economics and psychology): *anthropology*—Anthropology 7, 8, 9, 12; *economics*—Economics 1, 2, Mathematics 3A, 31E (or 3A and 3B, or 31A and 31B); *English*—English Composition 3, English 4W, 10A, 10B, 10C (all must be taken in sequence); *history*—

History 1A, 1B, 1C, 10B, 13A, 13B, 13C, and one course from 97A through 97O or 100; *philosophy*—Philosophy 4, 21, 22, 31; *political science*—Economics 1, Political Science 6, 20, 40, Sociology 1; *psychology*—Anthropology 7, Mathematics 2, Physics 10 (or 1A or 6A), Psychology 100A, 100B, one year of high school chemistry (or Chemistry and Biochemistry 2 or 20A); *sociology*—Afro-American Studies M5 or Anthropology 34, Anthropology 9, Mathematics 2, Sociology 1. Students are strongly urged to complete the required lower division courses within the first two years of the major.

Transfer Students

Transfer applicants to the Afro-American Studies major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: one civilizations of Africa course and additional coursework in one of the areas of concentration.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: (1) Anthropology M164, English M104A or M104B or M104C, History M150B, M150C; (2) four upper division and/or graduate courses in Afro-American studies (or four departmental courses that are multiple-listed with Afro-American Studies); (3) six upper division electives within the department of concentration selected from the approved courses listed below; (4) two upper division electives outside the department of concentration selected from the approved courses list.

Students may petition the committee that administers the degree program to have a course not on the approved list accepted for the major. In arranging a course of study, students should select a combination of courses that best meets their current and future educational and career goals. They must maintain an overall 2.0 grade-point average in all courses taken.

Approved courses (recommended courses are indicated by an asterisk):

Afro-American Studies *100B, *M104A, *M104B, *M104C, *M144, *M145, *M158A, *M158B, *M158C, *M158E, *M164, *M172, *M179A, *179B, *C191, *199

Anthropology *111, 115P, 120, 124A, *130, 135A, 135B, 136Q, *M140, 142A, 142B, *M145, *150, *M151, *152, *153, M154P, M154Q, 158, 161, *M164, *167, M168, *171, 182, M186, *199

Economics *11, *101, *102, 107, 111, 112, 121, 122, 130, M135, M136, *137, 150, *151, 160, 161, 183, *199A

English 80, 85, 91A, 91B, 91C, 100, *M104A, *M104B, *M104C, M105A, 106, M107A, M107B, M107C, 108A, 108B, *109, *111A, 114, 115A, 118, *120, 140A, 140B, 141A, 141B, 142A, 142B, 143, 171A, 171B, 173B, 174B, *178A, *M179A, 182B, 182C, *199

English Composition 131A through 131D, 136A, 136B, 136C

History 97A through 97O, 100, M103A, M103B, 106A, 108A, 131A, 131B, *138A, *138B, *138C, *139A, 139B, 140A, 140B, 140C, 141A, 141B, *145A, *145B, 146C, 146D, *147A through M147D, *M150A through *M150E, M151A, M151B, 152, 159, *M164A, *164B, *164C, 166A, 166B, 167A, 167B, 167C, 168A, 168B, 185A, *197

Philosophy 100A, 100B, M101A, M101B, M102, *104, 124, 125, *126, 129, *150, 151A, C151B, 153A, C156, 166, *172, 178, 182, *M187, *199

Political Science *104A, *104B, *M105, *M106, M111A, 111B, 111C, 113A, *114A, *114B, *116A, 119, 120A, 123A, 123B, 124A, 125A, 126, 131, *137A, *137B, *M141A, 141B, *141C, 142A, *142B, 142C, 143A, 143B, *M144B, 145A through 145D, 146E, *151A, *151B, *151C, *167A, 167B, *168, *170A, *199

Psychology *100B, *110, *111, 112B, *115, 116, 119D, *120A, 121, *127A, 129A, 129B, *130, *132A, *135, *136A, 136B, 137C, M138, *142H, 150, M163, M165, *M172, *175, 177, 179A, *192, *194A, *195A (note: courses 110, 115, 120A, 127A, 135, and 142H should be taken by students planning to pursue graduate study in psychology)

Sociology *20, *101, *102, *113, 116, 132, *133, *134, 135, M138, 145, 147A, *147B, 148, *156, *157, *158, *160, 169, 170, 171, M174, M175, M176, 180A through 180Z, 182, *183, *184, *185, 186, *191A through *191R, *199

Double Major Option

Some students elect to complete the requirements of both the Afro-American Studies major and one other major. Students interested in this option must maintain good academic standing and complete both majors within the unit maximum imposed by the College. Some courses used to satisfy the requirements for the principal major may also be used to satisfy the requirements for the secondary major, but no more than five courses may be common to both majors. Because of the complexity of the double major, students are encouraged to plan their curriculum early and to do so in consultation with the College counselors and the Afro-American Studies Program student affairs officer.

Honors Program

Afro-American Studies majors with grade-point averages of 3.5 or better are eligible for the honors option that requires the completion of a senior thesis under the guidance of an Afro-American Studies faculty member. For more information, contact the student affairs officer of the Afro-American Studies Program.

Afro-American Studies Minor

The Afro-American Studies minor is designed for students who wish to augment their major program of study with courses from various disciplines germane to Afro-American studies. The minor exposes students to African Ameri-

can studies-related coursework, research, and literature in a number of disciplines, such as anthropology, economics, English, history, political science, and sociology.

To enter the minor, students must be in good academic standing (2.0 grade-point average), have completed 45 units, and file a petition in the program office, 153 Haines Hall. All degree requirements, including the specific requirements for this minor, must be fulfilled within the unit maximum set forth by the College of Letters and Science.

Required Lower Division Courses (9 units): Afro-American Studies M5 and 6, with grades of C or better.

Required Upper Division Courses (24 units): Six courses selected from Afro-American Studies 100B, M103A, M103B, M103E, M104A, M104B, M104C, M107, M109, M110A, M110B, M144, M158A through M158E, M164, M172, M179A, 179B, C191, 199, Anthropology M164, English M104A, M104B, M104C, 111A, 120, 178A, M179A, Ethnomusicology M109, M110A, M110B, M111, M119, History 147A through M147D, M150A through M150E, M164A through 164E, 166A, 166B, 166C, Philosophy 104, 126, 150, 172, Political Science M105, M106, 116A, 137A, 137B, M141A, 141C, 142B, M144B, Psychology 100B, 110, 111, 115, 120A, 127A, 130, 132A, 135, 136A, 142H, M172, 175, 192, 193, 194A, Sociology 101, 102, 113, 133, 134, 156, 157, Theater M103A, M103B, M103E.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major or minor requirements in another department or program, and at least 16 units applied toward the minor must be taken in residence at UCLA. Transfer credit for any of the above is subject to program approval; consult the student affairs officer before enrolling in any courses for the minor.

Each minor course must be taken for a letter grade, and students must have a minimum grade of C (2.0) in each and an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Afro-American Studies Program offers the Master of Arts (M.A.) degree in Afro-American Studies. A concurrent degree program (Afro-American Studies M.A./Law J.D.) is also offered.

Afro-American Studies

Lower Division Courses

M5. Social Organization of Black Communities. (5) (Same as Sociology M5.) Lecture, four hours; discussion, one hour; field trips. Analysis and interpretation of social organization of black communities, with focus on origins and development of black communities, competing theories and research findings, defining characteristics and contemporary issues. Letter grading.

6. Trends in Black Intellectual Thought. (4) Lecture, three hours; discussion, one hour. Overview of major intellectual trends that have shaped ways in which Afro-American thinkers have interpreted experiences of blacks in U.S., drawing from such fields as history, philosophy, and literature. Letter grading.

M10A. History of Africa to 1800. (5) (Same as History M10A.) Lecture, three hours; discussion, one hour. Exploration of development of African societies from earliest times to late 18th century. P/NP or letter grading.

Upper Division Courses

100B. Psychology from Afro-American Perspective. (4) Lecture, three hours. Survey of psychological literature relevant to Afro-Americans, with emphasis on contributions of Afro-American psychologists. Topics include history of psychology, testing and intelligence, family, personality and motivation, racism and race relations, education, community psychology, and future of Afro-American psychology. P/NP or letter grading.

100C. Creative Writing Workshop: Poetry. (4) Lecture, three hours. Weekly exercises in poetry writing and criticism. Study of techniques. Classroom discussion based on work produced by students. P/NP or letter grading.

M102. Culture, Media, and Los Angeles. (6) (Same as Asian American Studies M160 and Honors Collegium M102.) Lecture, four hours; screenings, two hours. Designed for juniors/seniors. Role of media in society and its influence on contemporary cultural environment, specifically in Los Angeles; issues of representation as they pertain to race, ethnicity, gender, and sexuality. P/NP or letter grading.

M103A. African American Theater History: Slavery to Mid-1800s. (4) (Same as Theater M103A.) Lecture, three hours. Designed for juniors/seniors. Exploration of extant materials on history and literature of theater as developed and performed by African American artists in America from slavery to mid-1800s. Letter grading.

M103B. African American Theater History: Minstrel Stage to Rise of American Musical. (4) (Same as Theater M103B.) Lecture, three hours. Designed for juniors/seniors. Exploration of extant materials on history and literature of theater as developed and performed by African American artists in America from minstrel stage to rise of American musical. Letter grading.

M103E. African American Theater History: Depression to Present. (4) (Same as Theater M103E.) Lecture, three hours. Designed for juniors/seniors. Exploration of extant materials on history and literature of theater as developed and performed by African American artists in America from Depression to present. Letter grading.

M104A. Early Afro-American Literature. (5) (Same as English M104A.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Introductory survey of black American literature from 18th century through World War I, including oral and written forms (folktales, spirituals, sermons; fiction, poetry, essays), by authors such as Phillis Wheatley, David Walker, Frances Harper, Frederick Douglass, Harriet Jacobs, Paul Laurence Dunbar, Charles W. Chesnut, Booker T. Washington, and Pauline Hopkins. P/NP or letter grading.

M104B. Afro-American Literature from Harlem Renaissance to 1960s. (5) (Same as English M104B.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3

or 3H. Introductory survey of 20th-century black American literature from New Negro Movement of post-World War I period to 1960s, including oral materials (ballads, blues, speeches) and fiction, poetry, and essays by authors such as Jean Toomer, Claude McKay, Langston Hughes, Sterling Brown, Nella Larsen, Zora Neale Hurston, Richard Wright, Ann Petry, James Baldwin, and Ralph Ellison. P/NP or letter grading.

M104C. Afro-American Literature since 1960s. (5) (Same as English M104C.) Lecture, four hours. Enforced requisite: English Composition 3 or 3H. Introductory survey of diverse forms of Afro-American literary expression produced from rise of Black Arts Movement of 1960s to present by writers such as Amiri Baraka, Nikki Giovanni, Alice Walker, Etheridge Knight, Toni Morrison, Martin Luther King, Jr., Paule Marshall, Ernest Gaines, Ishmael Reed, and Audre Lorde. P/NP or letter grading.

M107. Cultural History of Rap. (5) (Same as Ethnomusicology M119.) Lecture, four hours; discussion, one hour. Introduction to development of rap music and hip-hop culture, with emphasis on musical and verbal qualities, philosophical and political ideologies, gender representation, and influences on cinema and popular culture. P/NP or letter grading.

M109. Women in Jazz. (4) (Same as Ethnomusicology M109 and Women's Studies M109.) Lecture, four hours; discussion, one hour. Sociocultural history of women in jazz and allied musical traditions from 1880s to present. Survey of women vocalists, instrumentalists, composers/arrangers, and producers and their impact on development of jazz. P/NP or letter grading.

M110A-M110B. African American Musical Heritage. (5-5) (Formerly numbered CM110A-CM110B.) (Same as Ethnomusicology M110A-M110B.) Lecture, four hours; discussion, one hour. P/NP or letter grading. **M110A.** Sociocultural history and survey of African American music covering Africa and its impact on Americas; music of 17th through 19th centuries; minstrelsy and its impact on representation of blacks in film, television, and theater; religious music, including hymns, spirituals, and gospel; black music of Caribbean and Central and South America; and music of black Los Angeles. **M110B.** Sociocultural history and survey of African American music covering blues, pre-1947 jazz styles, rhythm 'n' blues, soul, funk, disco, hip-hop, and symbiotic relationship between recording industry and effects of cultural politics on black popular music productions.

CM112A. African American Music in California. (4) (Same as Ethnomusicology CM112.) Lecture, four hours. Historical and analytical examination of African American music in California, including history, migration patterns, and urbanism to determine their impact on development of African American music in California. Concurrently scheduled with course CM212A. P/NP or letter grading.

CM112D. African American Art. (4) (Same as Art History CM112D.) Lecture, three hours. Detailed inquiry into work of 20th-century African American artists whose works provide insightful and critical commentary about major features of American life and society, including visits to various key African American art institutions in Los Angeles. Concurrently scheduled with course CM212D. P/NP or letter grading.

CM112E. African American Art. (4) (Same as Art History CM112E.) Lecture, three hours. Continuation of course CM112D, involving detailed inquiry into work of 20th-century African American artists. Concurrently scheduled with course CM212E. P/NP or letter grading.

CM112F. Imaging Black Popular Culture. (4) (Same as Art History CM112F.) Lecture, three hours. Critical examination of media ranging from African American painting and sculpture to MTV and advertising, with emphasis on relationship between black visual production and racism, Afrocentrism, political resistance, and notions of blackness. Concurrently scheduled with course CM212F. P/NP or letter grading.

M114C. African American Political Thought. (4)

(Same as Political Science M114C.) Lecture, three or four hours; discussion, one hour (when scheduled). Intensive introduction to African American political thought, with focus on major ideological trends and political philosophies as they have been applied and interpreted by African Americans. Debates and conflicts in black political thought, historical contest of African American social movements, and relationship between black political thought and major trends in Western thought. P/NP or letter grading.

M114D. African American Freedom Narratives. (4)

(Same as Political Science M114D.) Lecture, three or four hours; discussion, one hour (when scheduled). Historical, psychological, and thematic interpretation of selected narratives and storytelling in African American culture and politics. P/NP or letter grading.

M114E. Malcolm X and Black Liberation. (4)

(Same as Political Science M114E.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Analysis of black radicalism in mid-20th century, with special attention to contribution of Malcolm X and black nationalism to African American liberation movement. P/NP or letter grading.

M118. Student-Initiated Retention and Outreach Issues in Higher Education. (4)

(Same as American Indian Studies M118, Asian American Studies M168, and Chicana and Chicano Studies M118.) Lecture, four hours. Exploration of issues in outreach and retention of students in higher education, especially through student-initiated programs, efforts, activities, and services, with focus on UCLA as case. May be repeated twice for credit. Letter grading.

M120. Race, Inequality, and Public Policy. (4)

(Same as Public Policy M120.) Lecture, three hours. Background in economics, sociology, or urban studies preferred but not required. Survey course to examine major debates and current controversies concerning public policy responses to social problems in urban America. Letter grading.

C130A. Black Diaspora: Ghana and African Americans—Connections and Crosscurrents. (4)

Lecture, three hours; fieldwork, one hour. Exploration of historic and cultural relationship between African Americans and Ghana as part of larger discourse on contemporary black diaspora. Attention to past that linked African Americans to Ghana through Atlantic slave trade and impact on both Ghana and those Ghanians who became American slaves. Consideration of development of Ghana since trade ended, following its history as both colony of Britain and as independent state. Examination of cultural, intellectual, and political connections between African Americans and Ghana (and West Africa more broadly) over time. Concurrently scheduled with course C230A. P/NP or letter grading.

C130B. Black Cultural Diaspora: Question of African Cultural Retention, Extension, or Extinction among Black Americans. (4)

Lecture, three hours; fieldwork, one hour. Consideration of important intellectual question of destiny of traditional West African cultures in black America. Did enslaved people from Africa arrive in North America completely devoid of their cultures? Did they maintain some cultural attributes for some generations? Were all vestiges of African cultures invisible by end of U.S. Civil War? How was culture of African Americans transformed across time and space? Who are major contributors to this debate and what have been their intellectual and methodological approaches? How can study of Ghanaian cultures contribute to this discourse? Focus on traditional cultures of West Africa, particularly Ghana, and its imprint on black culture in North America. Concurrently scheduled with course C230B. P/NP or letter grading.

M144. Ethnic Politics: African American Politics. (4)

(Same as Political Science M144B.) Lecture, three or four hours; discussion, one hour (when scheduled). Preparation: one 140-level political science course or one upper division course on race or ethnicity from history, psychology, or sociology. Requisite: Political Science 40. Designed for juniors/seniors. Emphasis

on dynamics of minority group politics in U.S., touching on conditions facing racial and ethnic groups, with black Americans being primary case for analysis. Three primary objectives: (1) to provide descriptive information about social, political, and economic conditions of black community, (2) to analyze important political issues facing black Americans, (3) to sharpen students' analytical skills. P/NP or letter grading.

M145. Ellingtonia. (4)

(Same as Ethnomusicology M111.) Lecture, three hours. Music of Duke Ellington, his life, and far-reaching influence of his efforts. Ellington's music, known as "Ellingtonia," is one of largest and perhaps most important bodies of music ever produced in U.S. Covers many contributions of other artists who worked with Ellington, such as composer Billy Strayhorn and musicians Johnny Hodges, Cootie Williams, and Mercer Ellington. P/NP or letter grading.

M150D. Recent African American Urban History: Funk Music and Politics of Black Popular Culture. (4)

(Same as History M150D.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Exploration of musical genre known as "funk" which emerged in its popular form during late 1960s and reached popular high point, in black culture, during 1970s. Funk, fusion of gospel, blues, jazz, rhythm and blues, soul, rock, and many other musical styles, offers students unique window into recent African American history. P/NP or letter grading.

M154C. Black Experience in Latin America and Caribbean. (4)

(Same as Political Science M154C.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Culture, history, politics, and identity of African Americans in Spanish and Lusophone Caribbean, South America, and Central America. Exploration of issues of identity in context of Afro/Latino migration to U.S. P/NP or letter grading.

M158A. Comparative Slavery Systems. (4)

(Same as History M150A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of slavery experiences in various New World slave societies, with emphasis on outlining similarities and differences among legal status, treatment, and slave cultures of North American, Caribbean, and Latin American slave societies. P/NP or letter grading.

M158B-M158C. Introduction to Afro-American History. (4-4)

(Same as History M150B-M150C.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of Afro-American experience, with emphasis on three great transitions of Afro-American life: transition from Africa to New World slavery, transition from slavery to freedom, and transition from rural to urban milieu. P/NP or letter grading.

M158E. African American Nationalism in First Half of 20th Century. (4)

(Same as History M150E.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Critical examination of African American search in first half of 20th century for national/group cohesion through collectively built institutions, associations, organized protest movements, and ideological self-definition. P/NP or letter grading.

M159P. Constructing Race. (4)

(Same as Anthropology M159P and Asian American Studies M169.) Lecture, three hours. Examination of race, socially constructed category, from anthropological perspective. Consideration of development of racial categories over time and in different regions, racial passing, multiracial identity in U.S., whiteness, race in popular culture, and race and identity. P/NP or letter grading.

M163. Investigative Journalism and Communities of Color. (4)

(Same as Asian American Studies M163.) Lecture, three hours. Role of investigative journalism in understanding interethnic conflict and cooperation. Exploration of different perspectives on issues by comparing mainstream, ethnic, and alternative media coverage. P/NP or letter grading.

M164. Afro-American Experience in U.S. (4)

(Same as Anthropology M164.) Lecture, three hours. Promotes understanding of contemporary sociocultural forms among Afro-Americans in U.S. by presenting

comparative and diachronic perspective on Afro-American experience in New World. Emphasis on utilization of anthropological concepts and methods in understanding origins and maintenance of particular patterns of adaptation among black Americans. P/NP or letter grading.

M165. Sociology of Race and Labor. (4)

(Same as Labor and Workplace Studies M165 and Sociology M165.) Lecture, three hours; discussion, one hour. Limited to juniors/seniors. Exploration of relationship between race/ethnicity, employment, and U.S. labor movement. Analysis of underlying racial divisions in workforce and how they evolved historically. Consideration of circumstances under which workers and unions have excluded people of color from jobs and unions, as well as circumstances under which workers and unions have organized people of color into unions in efforts to improve their wages and working conditions. Impact of globalization on these dynamics. P/NP or letter grading.

M166. Afro-American Sociolinguistics: Black English. (4)

(Same as Anthropology M145.) Lecture, three hours. Basic information on Black American English, important minority dialect in U.S. Social implications of minority dialects examined from perspectives of their genesis, maintenance, and social functions. General problems and issues in fields of sociolinguistics examined through case-study approach. Letter grading.

M167. Worker Center Movement: Next Wave Organizing for Justice for Immigrant Workers. (4)

(Same as Asian American Studies M166C, Chicana and Chicano Studies M130, and Labor and Workplace Studies M167.) Seminar, three hours. Development of theoretical and practical understanding of worker center movement, with focus on historical factors that have led to emergence and growth of worker centers. Role of worker centers in promoting multiethnic and multiracial campaigns for workplace and economic justice. Transnational cross-border solidarity issues and rights of undocumented workers. P/NP or letter grading.

M172. Afro-American Woman in U.S. (4)

(Same as Psychology M172 and Women's Studies M172.) Lecture, two and one-half hours. Designed for juniors/seniors. Impact of social, psychological, political, and economic forces which impact on interpersonal relationships of Afro-American women as members of large society and as members of their biological and ethnic group. P/NP or letter grading.

M173. Nonviolence and Social Movements. (4)

(Same as Chicana and Chicano Studies M173 and Labor and Workplace Studies M173.) Lecture, three hours; discussion, one hour. Overview of nonviolence and its impact on social movements both historically and in its present context in contemporary society, featuring lectures, conversations, films, readings, and guest speakers. Exploration of some historic contributions of civil rights struggles and role of nonviolent action throughout recent U.S. history. Examination of particular lessons of nonviolent movements as they impact social change organizing in Los Angeles. P/NP or letter grading.

M178. Sociology of Caribbean. (4)

(Same as Sociology M178.) Lecture, three hours; discussion, one hour. Limited to juniors/seniors. Historical sociology of Caribbean, with emphasis on colonialism and decolonization, development and underdevelopment, race-making institutions and evolution of race relations, nationalism and migration. P/NP or letter grading.

M179A. Topics in Afro-American Literature. (5)

(Same as English M179A.) Seminar, four hours. Enforced requisite: English Composition 3 or 3H. Variable specialized studies course in Afro-American literature. Topics include Harlem Renaissance; Afro-American Literature in Nadir, 1890 to 1914; Contemporary Afro-American Fiction. May be repeated for credit. P/NP or letter grading.

179B. Special Studies in Comparative Literature: Caribbean Literature. (4)

Seminar, three hours. General introduction to literature of English-speaking Caribbean by reviewing its historical and geographical background. To analyze historical process toward

self-determination in literature, following topics are included: (1) alienation and search for community, (2) external relationships (ancestor, kinsman, other), and (3) form and language. P/NP or letter grading.

M182A. Language, Literacy, and Human Development Ethnography (2) (Same as Education M182A.) Fieldwork, three hours. Enforced corequisite: course M194A. Students visit after-school site on weekly basis and use ethnographic methods to document learning. Opportunity for students to connect theories of development and language and literacy learning with practice. Letter grading.

M182B. Culture, Gender, and Human Development Ethnography (2) (Same as Education M182B.) Fieldwork, three hours. Enforced corequisite: course M194B. Students visit after-school site on weekly basis and use ethnographic methods to document learning. Opportunity for students to connect theories of development and language and literacy learning with practice. Letter grading.

M182C. Culture, Communications, and Human Development Ethnography (2) (Same as Education M182C.) Fieldwork, three hours. Enforced corequisite: course M194C. Students visit after-school site on weekly basis and use ethnographic methods to document learning. Opportunity for students to connect theories of development and language and literacy learning with practice. Letter grading.

M183A. Language, Literacy, and Human Development Ethnography (3) (Same as Education M183A.) Fieldwork, six hours. Enforced corequisite: course M194A. Students visit after-school site on weekly basis and use ethnographic methods to document learning. Opportunity for students to connect theories of development and language and literacy learning with practice. Letter grading.

M183B. Culture, Gender, and Human Development Ethnography (3) (Same as Education M183B.) Fieldwork, six hours. Enforced corequisite: course M194B. Students visit after-school site on weekly basis and use ethnographic methods to document learning. Opportunity for students to connect theories of development and language and literacy learning with practice. Letter grading.

M183C. Culture, Communications, and Human Development Ethnography (3) (Same as Education M183C.) Fieldwork, six hours. Enforced corequisite: course M194C. Students visit after-school site on weekly basis and use ethnographic methods to document learning. Opportunity for students to connect theories of development and language and literacy learning with practice. Letter grading.

188A. Special Courses in Afro-American Studies. (4) (Formerly numbered 188.) Seminar, four hours. Program-sponsored experimental or temporary courses, such as those taught by visiting faculty members. May be repeated for credit with topic change. P/NP or letter grading.

188B. Race and Public Policy. (5) Seminar, three hours. Exploration of range of public policies concerned with promoting civil rights of racial minorities, with focus on education, voting, and housing. Why did such policies initially arise? How have they since developed? How effective have they been in closing racial gap? Provides students with basic foundation of knowledge for thinking through contemporary debates surrounding policies that seek to redress racial discrimination in U.S. P/NP or letter grading.

C191. Variable Topics Research Seminars: Afro-American Studies. (4) Seminar, four hours. Research seminar on selected topics in Afro-American studies. Reading, discussion, and development of culminating project. May be repeated for credit. Concurrently scheduled with course C291. Letter grading.

M194A. Language, Literacy, and Human Development Research Group Seminars (5) (Same as Education M194A.) Seminar, three hours; laboratory, two hours (when scheduled). Enforced corequisite: course M182A or M183A. Research seminar designed to provide opportunity to combine theory and practice in study of human development in education-

al contexts. Focus on relationship between theories of development, culture, and language. May be taken independently for credit. Letter grading.

M194B. Culture, Gender, and Human Development Research Group Seminars (5) (Same as Education M194B.) Seminar, three hours; laboratory, two hours (when scheduled). Enforced corequisite: course M182B or M183B. Research seminar designed to provide opportunity to combine theory and practice in study of human development in educational contexts. Focus on relationship between theories of development, culture, and gender. May be taken independently for credit. Letter grading.

M194C. Culture, Communications, and Human Development Research Group Seminars (5) (Same as Education M194C.) Seminar, three hours; laboratory, two hours (when scheduled). Enforced corequisite: course M182C or M183C. Research seminar designed to provide opportunity to combine theory and practice in study of human development in educational contexts. Focus on relationship between theories of development, culture, and technologies. May be taken independently for credit. Letter grading.

195. Community or Corporate Internships in Afro-American Studies. (4) Tutorial, four hours. Preparation: 3.0 grade-point average in major. Limited to junior/senior majors. Internship in supervised setting in community agency or business. Students meet on regular basis with instructor and provide periodic reports of their experience. Eight units may be applied toward major requirements. May be repeated for credit. Individual contract with supervising faculty member required. P/NP or letter grading.

197. Individual Studies in Afro-American Studies. (2 to 8) Tutorial, four hours. Preparation: 3.0 grade-point average in major. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. Eight units may be applied toward major requirements. May be repeated for credit. Individual contract required. P/NP or letter grading.

198. Honors Research in Afro-American Studies. (2 to 4) Tutorial, four hours. Limited to juniors/seniors. Development and completion of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for credit. Individual contract required. Letter grading.

199. Directed Research or Senior Project in Afro-American Studies. (2 to 4) Tutorial, to be arranged with faculty member who directs study. Preparation: 3.0 grade-point average in major. Limited to juniors/seniors. Supervised individual research or investigation of large project under guidance of faculty mentor. Culminating paper or project required. Eight units may be applied toward major requirements. May be repeated for maximum of 16 units. Individual contract required. P/NP or letter grading.

Graduate Courses

M200A. Advanced Historiography: Afro-American. (4) (Same as History M200V.) Seminar, three hours. May be repeated for credit. S/U or letter grading.

200B. Seminar: Political Economy of Race. (4) Seminar, three hours. Seminar on political economy, with special reference to black political economy and with focus on dynamics of allocation of wealth and power resources among social classes and racial and ethnic groups in U.S. Presented in context that is at once comparative and international, seminar emphasizes internationalism and transnationalism as well as uniqueness of Afro-American condition. Attempts to relate black condition in U.S. to socioeconomic system of this country and to compare it to political, social, and economic conditions of African peoples elsewhere. S/U or letter grading.

M200C. Selected Problems in Urban Sociology. (4) (Same as Sociology M262.) Seminar, three hours. S/U or letter grading.

M200D. Afro-American Sociolinguistics: Black English. (4) (Same as Anthropology M243Q.) Lecture, three hours. Basic information on Black American English, one important minority dialect in U.S. Social implications of minority dialects examined from perspectives of their genesis, maintenance, and social functions. General problems and issues in fields of sociolinguistics examined through case study approach. Students required to conduct research in consultation with instructor and participate in group discussion. S/U or letter grading.

M200E. Studies in Afro-American Literature. (4) (Same as English M262.) Lecture, four hours. Intensive research and study of major themes, issues, and writers in Afro-American literature. Discussions and research on aesthetic, cultural, and social backgrounds of Afro-American writing. May be repeated for credit. S/U or letter grading.

200F. African American Psychology. (4) Seminar, three hours. Survey of psychological literature as it pertains to persons of African American descent. Critical review of implications of "mainstream" research on African Americans, including discussion of research on family, academic achievement, and psychological assessment (testing). Emphasis also on theoretical approaches advanced by African American scholars: African philosophy, perspectives on racism in psychology, and research in black community. S/U or letter grading.

M211. Seminar: African American Music. (4) (Same as Ethnomusicology M211.) Seminar, three hours. Requisites: Ethnomusicology M110A, M110B. Designed for graduate students. In-depth examination of intellectual history of African American music scholarship. Intensive investigation of problems, theories, interdisciplinary methods/schools of research, and bibliography related to study of African American music. Letter grading.

CM212A. African American Music in California. (4) (Same as Ethnomusicology CM212.) Lecture, four hours. Historical and analytical examination of African American music in California, including history, migration patterns, and urbanism to determine their impact on development of African American music in California. Concurrently scheduled with course CM112A. S/U or letter grading.

CM212D. African American Art. (4) (Same as Art History CM212D.) Lecture, three hours. Detailed inquiry into work of 20th-century African American artists whose works provide insightful and critical commentary about major features of American life and society, including visits to various key African American art institutions in Los Angeles. Concurrently scheduled with course CM112D. S/U or letter grading.

CM212E. African American Art. (4) (Same as Art History CM212E.) Lecture, three hours. Continuation of course CM212D, involving detailed inquiry into work of 20th-century African American artists. Concurrently scheduled with course CM112E. Letter grading.

CM212F. Imaging Black Popular Culture. (4) (Same as Art History CM212F.) Lecture, three hours. Critical examination of media ranging from African American painting and sculpture to MTV and advertising, with emphasis on relationship between black visual production and racism, Afrocentrism, political resistance, and notions of blackness. Concurrently scheduled with course CM112F. S/U or letter grading.

C230A. Black Diaspora: Ghana and African Americans—Connections and Crosscurrents. (4) Lecture, three hours; fieldwork, one hour. Exploration of historic and cultural relationship between African Americans and Ghana as part of larger discourse on contemporary black diaspora. Attention to past that linked African Americans to Ghana through Atlantic slave trade and impact on both Ghana and those Ghanians who became American slaves. Consideration of development of Ghana since trade ended, following its history as both colony of Britain and as independent state. Examination of cultural, intellectual, and political connections between African Americans and Ghana (and West Africa more broadly) over time. Concurrently scheduled with course C130A. S/U or letter grading.

C230B. Black Cultural Diaspora: Question of African Cultural Retention, Extension, or Extinction among Black Americans. (4) Lecture, three hours; fieldwork, one hour. Consideration of important intellectual question of destiny of traditional West African cultures in black America. Did enslaved people from Africa arrive in North America completely devoid of their cultures? Did they maintain some cultural attributes for some generations? Were all vestiges of African cultures invisible by end of U.S. Civil War? How was culture of African Americans transformed across time and space? Who are major contributors to this debate and what have been their intellectual and methodological approaches? How can study of Ghanaian cultures contribute to this discourse? Focus on traditional cultures of West Africa, particularly Ghana, and its imprint on black culture in North America. Concurrently scheduled with course C130B. S/U or letter grading.

M240. Assessment and Treatment of African American Families. (3) (Same as Psychiatry M240.) Seminar, two hours. Designed for graduate students. Course aids mental health professionals and trainees in evaluation and treatment of African American families in terms of their cultural milieu, historical background, and economic status. Didactic presentations by instructors and invited guests form basis for supervised evaluation and case management with African American children and families. Letter grading.

241. Special Topics in Afro-American Studies. (4) Lecture, four hours; discussion, one hour. Intensive research and study of major themes and issues in various areas of Afro-American studies. S/U or letter grading.

M252S. Constructing Race. (4) (Same as Anthropology M252S.) Seminar, three hours. Examination of social construction of race from anthropological perspective in order to refine understanding of ways this category has had and continues to have concrete impact in U.S. Exploration of range of topics, including role discipline of anthropology has played in construction of race, representations of race in popular culture, instability of race revealed in passing and debates about multiracial identity, construction of whiteness, and emergence of identity politics. S/U or letter grading.

M256. Topics in African American Art. (4) (Same as Art History M256.) Seminar, three hours. Requirement: course CM112D or CM112E or CM112F. Topics in African American art from 18th century to present. May be repeated for credit with consent of graduate adviser. S/U or letter grading.

270A. Survey of Afro-American Research. (4) Seminar, three hours. Overview of research methodologies in humanities and social sciences, with first-hand reports from faculty in various fields. Introduction to research in and related to Afro-American studies and application of such research. Letter grading.

C291. Variable Topics in Afro-American Studies. (4) Seminar, four hours. Research seminar on selected topics in Afro-American studies. Reading, discussion, and development of culminating project. May be repeated for credit. Concurrently scheduled with course C191. Letter grading.

596. Directed Readings and Tutorials. (4) Tutorial, to be arranged. Provides students with umbrella under which they can pursue specialized interests from which there is insufficient demand to warrant offering formal courses. S/U or letter grading.

597. Preparation for M.A. Comprehensive Examination. (4 or 8) Tutorial, to be arranged. Limited to graduate students. May not be applied toward M.A. course requirements. S/U grading.

598. Research for and Preparation of M.A. Thesis. (4 or 8) Tutorial, to be arranged. Limited to graduate students. May not be applied toward M.A. course requirements. S/U grading.

AMERICAN INDIAN STUDIES

*Interdepartmental Program
College of Letters and Science*

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Felicia S. Hodge, Dr.P.H., *Chair*

Faculty Administrative Committee

Duane W. Champagne, Ph.D. (*Sociology*)
Mishuana R. Goeman, Ph.D. (*Women's Studies*)
Carole E. Goldberg, J.D. (*Law*)
Felicia S. Hodge, Dr.P.H. (*Health Services, Nursing*)
Paul V. Kroskriy, Ph.D. (*Anthropology*)
Peter Nabokov, Ph.D. (*World Arts and Cultures*)
Nancy Reifel, D.D.S., M.P.H. (*Dentistry*)

Scope and Objectives

Because UCLA possesses a substantial number of faculty members in the humanities and social sciences engaged in teaching and conducting research on American Indians, the nation's first interdisciplinary M.A. program in American Indian Studies was established here.

The Bachelor of Arts degree and the undergraduate American Indian Studies minor provide a general introduction for students who anticipate advanced study at the graduate level in American Indian studies, ethnic studies, and the traditional disciplines or careers in research, administration, public service, and community service related to American Indian communities.

The Master of Arts program draws primarily on existing courses in the participating departments, where research and research methodologies are of primary concern. Students are exposed to Indian-related research in a number of different disciplines; demonstration of research skills is required. Students graduate with the training they need to teach Native American studies or to serve in an administrative capacity in Indian programs or organizations. The M.A. program ranks among the top Indian studies programs in the country.

Undergraduate Study

American Indian Studies B.A.

The American Indian Studies B.A. program is designed to offer a coherent and comprehensive curriculum in American Indian cultures, societies, and contemporary issues in addition to valuable background in more traditional disciplines such as anthropology, art history, economics, education, history, law, linguistics, literature, sociology, and world arts and cultures. Students acquire a critical knowledge of the concepts, theories, and methods that have produced knowledge about American Indians in

the traditional disciplines. Students are encouraged to develop a concentration—or special expertise—in these fields to accompany the major.

The curriculum encompasses the cultural, historical, political, and social experiences of Native Americans in the Americas. Through courses on Native American literature, languages, theater, and contemporary societies and through more culturally specific courses on California Indians, cultures of the Pueblo southwest, and so on, the major provides an in-depth and broad knowledge on the experience of Native Americans not only in the U.S. and Canada but in Mexico and elsewhere in Latin America as well.

Given the increasingly multicultural society of the U.S. and the economic revitalization of many Native American communities, a knowledge of American Indian studies greatly enhances the professional and scholarly contributions attainable for those seeking postgraduate degrees in various related disciplines and fields.

Preparation for the Major

Required: American Indian Studies M10 and two courses from Anthropology 9, Political Science 40, Statistics 12, Women's Studies 10. Each course must be completed with a grade of C or better.

Transfer Students

Transfer applicants to the American Indian Studies major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: one introduction to American Indian studies course and two courses from culture and society, introduction to American politics, introduction to statistical methods, and introduction to women's studies.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Requirements are distributed according to certain categories to create a breadth of knowledge. Students are required to take a research methods course to become familiar with scholarly techniques of knowledge production and to critically regard academic research, as well as a course in either ethnic/race/gender relations or comparative indigenous studies. Three additional electives are selected in the social sciences and humanities according to a distributional formula that encourages further specialization within either of these two broad areas while simultaneously adding additional breadth. Finally, American Indian Studies C122SL prioritizes the experiential dimension of involvement in Native American communities (either urban, reservation, or rancheria) through work that provides service experience and/or supervised internship opportunities.

Students must complete 15 upper division courses (60 units) as follows, with no more

than 32 units from American Indian studies courses:

1. Ten core courses (40 units), including (a) American Indian Studies M161, (b) two *language* courses from Anthropology M140, C144, Linguistics 114, (c) two *history or law* courses from American Indian Studies 140, 158, C170, History 149A, 149B, 157B, (d) one *social sciences* course from American Indian Studies C120, C121, C130, C175, C178, Anthropology CM168P, 172A, 172B, 172R, or 174P, (e) two *expressive culture* courses from American Indian Studies 180, Art History C117A through C117D, 118D, English 106, Ethnomusicology 106A, 106B, Theater 103F, 107, (f) one *methodology* course from Anthropology 115P, 117, 139, 143, M186, Art History 100, Community Health Studies 181, Comparative Literature 100, Ethnomusicology 180, Linguistics 160, Political Science 104A, 170A, Social Welfare 103, 106, Sociology 106A, 113, or World Arts and Cultures 195, and (g) either one *ethnic/race/gender relations* course (Afro-American Studies M120, M164, Anthropology M134, 152, M154P, M154Q, Asian American Studies 130A, M130B, M130C, 131A, 132A, 133, 134, Chicana and Chicano Studies M182, Communication Studies M124, Film and Television 128, Sociology 154, 156, M162, Women's Studies M104C, 130, or 168) or one *comparative indigenous studies* course (Anthropology 153P, Comparative Literature 158, Geography M131, History 135A, or Sociology 157)
2. Three elective courses (12 units) in one of the following options: (a) history, law, and social sciences: two courses in those categories as listed above and one expressive culture course or (b) expressive culture: one social sciences course and two expressive culture courses
3. American Indian Studies C121 and C122SL (experiential service learning or supervised internship)

The 15 courses must fit one of the following regional emphasis patterns: (1) Native North America—eight courses, including those mentioned above and additional electives on Native North American topics or (2) indigenous peoples of the Americas—eight courses, including at least four dealing with indigenous people in Central and/or South America.

Each course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. No more than two independent studies courses (199s) may be applied toward the degree.

American Indian Studies Minor

The American Indian Studies minor is designed for students who wish to augment their major program of study in the College of Letters and Science with a group of related

courses from various disciplines germane to American Indian studies. The minor exposes students to Indian-related research and literature in a number of different disciplines, such as American Indian studies, anthropology, economics, history, political science, sociology, and theater.

To enter the minor, students must be in good academic standing (2.0 grade-point average), have completed 45 units, and file a petition at the American Indian Studies Center, 3220 Campbell Hall, (310) 206-7511. All degree requirements, including the specific requirements for this minor, must be fulfilled within the unit maximum set forth by the College of Letters and Science.

Required Lower Division Course (5 units): American Indian Studies M10 with a grade of C or better.

Required Upper Division Courses (28 units): Seven courses selected from the following: (1) one American Indian languages and communication systems course (Anthropology C144 or Linguistics 114); (2) three history and social sciences courses from American Indian Studies C120, C121, C122SL, C130, 140, 158, C170, C175, C178, Anthropology 113Q, 113R, 114P, 114Q, 114R, 158, 172R, History 149A, 149B, 157B, Sociology M161, Women's Studies 130; (3) three humanistic perspectives on language and expressive culture courses from American Indian Studies 180, Art History C117A, C117B, C117C, 118D, English 106, 180, Ethnomusicology 106A, 106B, Theater 103F.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major or minor requirements in another department or program, and at least 16 units applied toward the minor must be taken in residence at UCLA. Transfer credit for any of the above is subject to program approval; consult the interdepartmental adviser before enrolling in any courses for the minor.

Each minor course must be taken for a letter grade, and students must have a minimum grade of C (2.0) in each and an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The American Indian Studies Program offers the Master of Arts (M.A.) degree in American Indian Studies. A concurrent degree program (American Indian Studies M.A./Law J.D.) is also offered.

American Indian Studies

Lower Division Course

M10. Introduction to American Indian Studies. (5) (Same as World Arts and Cultures M23.) Lecture, three hours; discussion, one hour; activity, one hour. Survey of selected Native North American cultures from pre-Western contact to contemporary period, with particular emphasis on early cultural diversity and diverse patterns of political, linguistic, social, legal, and cultural change in postcontact period. P/NP or letter grading.

Upper Division Courses

M118. Student-Initiated Retention and Outreach Issues in Higher Education. (4) (Same as Afro-American Studies M118, Asian American Studies M168, and Chicana and Chicano Studies M118.) Lecture, four hours. Exploration of issues in outreach and retention of students in higher education, especially through student-initiated programs, efforts, activities, and services, with focus on UCLA as case. May be repeated twice for credit. Letter grading.

C120. Working in Tribal Communities: Introduction. (4) Lecture, four hours. Through readings, discussion, and Native guest lecturers, students learn to participate within Native American communities engaged in political, social, and cultural processes of change and preservation. Development of proposal for Native nation-building project. Concurrently scheduled with course C220. Letter grading.

C121. Working in Tribal Communities: Preparing for Fieldwork. (4) Lecture, four hours. Through readings, discussion, Native guest lecturers, and project participation, introduction to rules of conduct and skills necessary to successfully work or carry out community service projects for Native American communities and organizations. Concurrently scheduled with course C221. Letter grading.

C122SL. Working in Tribal Communities: Service Learning. (4) Seminar, one hour; fieldwork, four hours. Enforced requisite: course C121. Recommended: course C120. Participation in community service learning project within Native American communities and organizations where students are mentored and supported by faculty members, other students, and project directors toward completing assigned service learning tasks and contributing to project activities. May be repeated with consent of instructor. Concurrently scheduled with course C222SL. Letter grading.

C130. California Indian Strategies for Contemporary Challenges. (4) Seminar, three hours. Through readings, discussion, and Native guest lecturers, introduction to contemporary issues and processes of self-directed social change and political, cultural, legal, and economic processes of nation building in contemporary California Native communities. Concurrently scheduled with course C230. Letter grading.

140. Federal Indian Law and Policy. (4) Lecture, four hours. Through readings, discussion, and Native guest lecturers, introduction to fundamental concepts and history of federal Indian law and policy. Investigation of contemporary policies and legal issues and exploration of Native responses to policy and law. Letter grading.

C145. Contemporary Indigenous Nations. (4) Seminar, three hours. Introduction to topics on contemporary indigenous nations, including social movements, social and cultural change and continuity, nation building, law and justice relations, economic development, education and socialization, international relations, comparative policy, colonialism, migration, national and social identities, and other issues and social cultural processes, seen as distinct from ethnicity, race, class, and nation, with focus on indigenous communities that have maintained self-government, territory, and culture. Investigation and search for analytic and policy patterns that give greater understanding and knowledge about current conditions and so-

cial and cultural processes of indigenous nations. Concurrently scheduled with course C245. Letter grading.

158. Nation Building. (4) Lecture, three hours; fieldwork/research, nine hours. Limited to junior/senior American Indian Studies majors. Examination of historical interplay of federal policies with tribal cultures that has shaped political development of American Indian tribal nations. Current developments within Indian nations, including restructuring government, developing economies, and asserting cultural sovereignty to be subject of research, study, and required community-based projects. Letter grading.

M161. Comparative American Indian Societies. (4) (Same as Sociology M161.) Lecture, three hours. Requisite: course M10 or Sociology 1. Comparative and historical study of political, economic, and cultural change in indigenous North American societies. Several theories of social change, applied to selected case studies. Letter grading.

CM168P. Perspectives on Health of Native North Americans. (4) (Same as Anthropology CM168P.) Seminar, three hours. Recommended preparation: some knowledge of medical anthropology and/or history and contemporary situation of first peoples of North America. Examination of different perspectives related to health and healthcare of Native North Americans (within present boundaries of U.S. and Canada) in relation to cultural, social, political, and economic aspects of changing historical context. Concurrently scheduled with course CM268P. P/NP or letter grading.

C170. California Indian History. (4) Lecture, four hours. Introduction to overview of California Indian history, specific tribal community histories, and/or contemporary California Indian history through readings, discussion, and Native guest lecturers. May be repeated for credit with topic change and consent of interdepartmental chair. Concurrently scheduled with course C270. Letter grading.

C175. Cultures of Native Southern California. (4) Lecture, three hours. Introduction to Southern California indigenous societies through readings, discussion, guest lecturers, and direct community participation. May be repeated for credit with topic and/or instructor change and consent of interdepartmental chair. Concurrently scheduled with course C275. Letter grading.

C178. California Experiences in Native Cultural Resource Management. (4) Seminar, three hours. Exploration of creation and implementation of laws that affect cultural resource management in California, such as California Environmental Quality Act (CEQA), Native American Graves Protection and Repatriation Act (NAGPRA), AB 978 (California NAGPRA), American Indian Religious Freedom Act, National Environmental Policy Act (NEPA), and National Historic Preservation Act (NHPA), from applied standpoint. To understand goals and challenges of these laws, examination of series of cases from California sites. Concurrently scheduled with course C278. Letter grading.

180. Introduction to and Practicum in Native American Languages. (4) Lecture, three hours; laboratory, one hour. Development of ability to converse, read, and write at elementary level in Native American languages. Introduction to both phonological and grammatical structures, vocabulary, and cultural patterns of using language as symbolic guide to culture. May be repeated with language change and approval of interdepartmental chair. Letter grading.

187. Special Topics in American Indian Studies. (4) Lecture, four hours. Variable topics selected from following: Myth and Folklore of Indian Societies; Contemporary American Indian Literature; Social Science Perspectives of American Indian Life; Law and American Indian; History of American Indians (cultural area); Dance and Music of American Indians (cultural area); American Indian Policy. Consult *Schedule of Classes* for topics and instructors. May be repeated twice for credit. Letter grading.

195. Community Internships in American Indian Studies. (4) Tutorial, two hours; fieldwork, eight hours. Requisite: course M10. Limited to juniors/seniors. Internship in supervised setting in community agency. Students meet on regular basis with instructor and provide periodic reports on their experience. Designed to integrate theory and practice through experiential learning to gain firsthand knowledge of diversity, complexity, and variety of needs of American Indian communities. May be repeated for maximum of 8 units. Individual contract with supervising faculty member required. P/NP grading.

197. Individual Studies in American Indian Studies. (2 to 4) Tutorial, three hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned readings and tangible evidence of mastery of subject matter required. May be repeated for maximum of 16 units. Individual contract required. P/NP or letter grading.

199. Directed Research or Senior Project in American Indian Studies. (2 to 8) Tutorial, one hour. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

M200A. Advanced Historiography: American Indian Peoples. (4) (Same as History M200W.) Lecture, 90 minutes; seminar, 90 minutes. Introduction to culture-histories of North American Indians and review of Indian concepts of history. Stereotypical approach to content and methodologies related to Indian past that is interdisciplinary and multicultural in its scope. Letter grading.

M200B. Cultural World Views of Native America. (4) (Same as English M266.) Seminar, three hours. Exploration of written literary texts from oral cultures and other expressive cultural forms—dance, art, song, religious and medicinal ritual—in selected Native American societies, as these traditional and tribal contexts have been translated into contemporary literary texts (fiction, poetry, essay, and drama). Survey, from secondary sources, of interdisciplinary methodological approaches taken from literary analysis, structural anthropology, folklore, linguistics, and ethnomusicology. May be repeated for credit with instructor and/or topic change. Letter grading.

M200C. Contemporary Issues of American Indians. (4) (Same as Anthropology M269 and Sociology M275.) Seminar, three hours. Introduction to most important issues facing American Indians as individuals, communities, tribes, and organizations in contemporary world, building on historical background presented in course M200A and cultural and expressive experience of American Indians presented in course M200B. Letter grading.

201. Topics in American Indian Studies. (4) Discussion, three hours. S/U or letter grading.

M202. Qualitative Research Design and Methodology for Indigenous Communities. (5) (Formerly numbered 202.) (Same as Health Services M202 and Nursing M221.) Seminar, three hours. Introduction to some key theoretical themes in American Indian studies and exploration of methods that can be used to incorporate them in research on American Indian cultures, societies, languages, and other issues. Quantitative methods (design, appropriate use), with emphasis on qualitative research methods, ethics, and special considerations in conducting research in American Indian country. Design of research and exploration of feasibility of researching topics. Letter grading.

C220. Working in Tribal Communities: Introduction. (4) Lecture, four hours. Through readings, discussion, and Native guest lecturers, students learn to participate within Native American communities engaged in political, social, and cultural processes of change and preservation. Development of proposal for Native nation-building project. Concurrently scheduled with course C120. S/U or letter grading.

C221. Working in Tribal Communities: Preparing for Fieldwork. (4) Lecture, four hours. Through readings, discussion, Native guest lecturers, and project participation, introduction to rules of conduct and skills necessary to successfully work or carry out community service projects for Native American communities and organizations. Concurrently scheduled with course C121. S/U or letter grading.

C222SL. Working in Tribal Communities: Service Learning. (4) Seminar, one hour; fieldwork, four hours. Enforced requisite: course C221. Recommended: course C220. Participation in community service learning project within Native American communities and organizations where students are mentored and supported by faculty members, other students, and project directors toward completing assigned service learning tasks and contributing to project activities. May be repeated with consent of instructor. Concurrently scheduled with course C122SL. S/U or letter grading.

M228. Seminar: Indian Law—Tribal Legal Systems. (4) (Same as Law M528.) Seminar, two hours (15 weeks). Study of historic and contemporary legal systems of selected tribes, with emphasis on relationships among law, religion, and social order. Letter grading.

C230. California Indian Strategies for Contemporary Challenges. (4) Seminar, three hours. Through readings, discussion, and Native guest lecturers, introduction to contemporary issues and processes of self-directed social change and political, cultural, legal, and economic processes of nation building in contemporary California Native communities. Concurrently scheduled with course C130. S/U or letter grading.

M238. Indian Law Clinic: Legislation. (5) (Same as Law M428.) Lecture, three hours. Students provide nonlitigation legal assistance to Native American tribal nations, mostly in California. Clinic services include development and modification of tribal legal codes and constitutional provisions, development of tribal courts and other dispute resolution processes, and drafting of intergovernmental agreements. Cross-cultural representation, legislative drafting, and intergovernmental negotiation skills stressed. Letter grading.

C245. Contemporary Indigenous Nations. (4) Seminar, three hours. Introduction to topics on contemporary indigenous nations, including social movements, social and cultural change and continuity, nation building, law and justice relations, economic development, education and socialization, international relations, comparative policy, colonialism, migration, national and social identities, and other issues and social cultural processes, seen as distinct from ethnicity, race, class, and nation, with focus on indigenous communities that have maintained self-government, territory, and culture. Investigation and search for analytic and policy patterns that give greater understanding and knowledge about current conditions and social and cultural processes of indigenous nations. Concurrently scheduled with course C145. S/U or letter grading.

261. Comparative Indigenous Societies. (4) Lecture, two hours; discussion, two hours. Designed for graduate students. Investigation of detailed historical and contemporary ethnographic analyses of social change and cultural continuity within indigenous nations, primarily of U.S., but elsewhere also. Discussion of theories of change, comparative methodologies, and case materials. Letter grading.

M267. Indian Law. (5) (Same as Law M267.) Lecture, three hours (15 weeks). Special legal status of American Indians and Indian tribes and tension between moral/legal claims and political forces. Sources and scope of federal, state, and tribal power on Indian reservations; property law concepts unique to Indian tribes and Indians; rights of American Indians in relation to federal, state, and tribal governments and federal trust relationship to Indians. Letter grading.

M267A. Federal Indian Law II. (3) (Same as Law M267A.) Lecture, three hours. Special topics in Indian country jurisdiction and issues of Indian property rights, including land, water, cultural property, and

hunting and fishing, as well as tribal economic development. Consideration of international law treatment of indigenous rights. S/U or letter grading.

CM268P. Perspectives on Health of Native North Americans. (4) (Same as Anthropology CM268P) Seminar, three hours. Recommended preparation: some knowledge of medical anthropology and/or history and contemporary situation of first peoples of North America. Examination of different perspectives related to health and healthcare of Native North Americans (within present boundaries of U.S. and Canada) in relation to cultural, social, political, and economic aspects of changing historical context. Concurrently scheduled with course CM168P. S/U or letter grading.

C270. California Indian History. (4) Lecture, four hours. Introduction to overview of California Indian history, specific tribal community histories, and/or contemporary California Indian history through readings, discussion, and Native guest lecturers. May be repeated for credit with topic change and consent of interdepartmental chair. Concurrently scheduled with course C170. S/U or letter grading.

C275. Cultures of Native Southern California. (4) Lecture, three hours. Introduction to Southern California indigenous societies through readings, discussion, guest lecturers, and direct community participation. May be repeated for credit with topic and/or instructor change and consent of interdepartmental chair. Concurrently scheduled with course C175. S/U or letter grading.

C278. California Experiences in Native Cultural Resource Management. (4) Seminar, three hours. Exploration of creation and implementation of laws that affect cultural resource management in California, such as California Environmental Quality Act (CEQA), Native American Graves Protection and Repatriation Act (NAGPRA), AB 978 (California NAGPRA), American Indian Religious Freedom Act, National Environmental Policy Act (NEPA), and National Historic Preservation Act (NHPA), from applied standpoint. To understand goals and challenges of these laws, examination of series of cases from California sites. Concurrently scheduled with course C178. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

596. Directed Individual Studies. (4 to 8) Tutorial, to be arranged. S/U or letter grading.

598. Research for and Preparation of M.A. Thesis. (4 to 8) Tutorial, to be arranged. Preparation of research data and writing of M.A. thesis. S/U grading.

ANESTHESIOLOGY

David Geffen School of Medicine

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Chairs

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Endowed Professor of Anesthesiology*), *Chair*
Randolph H. Steadman, M.D., *Vice Chair, Education*
Enrico Stefani, Ph.D., M.D. (*John Bartley Dillon, M.D.,
Endowed Professor of Anesthesiology*), *Vice Chair,
Research*
Barbara M. Van de Weile, M.D., *Vice Chair, Clinical
Affairs*

Scope and Objectives

The medical student program in anesthesiology focuses on the delivery of peri-operative care to surgical patients. During their training in the department, students develop clinical skills of medical management of surgical patients, techniques of invasive line and monitor placement, and airway management skills. They are assigned to work with a specific attending anesthesiologist and/or anesthesia resident on a daily basis in one of the operating room locations and participate in the preoperative evaluation and preparation of their patients and development of an anesthetic plan. Students then observe how to prepare for and execute their anesthetic plan. They have opportunity to perform procedures as their abilities and the situation permit. In addition, the department's Human Patient Simulator provides students with a simulated operating room setting where a variety of clinical situations are initiated so they can practice their clinical skills. Students are also expected to attend clinically oriented lectures on a wide range of anesthesia topics, including physiology, pharmacology, and critical care.

For further details on the Department of Anesthesiology and a listing of the courses offered, see <http://www.anes.ucla.edu>.

Anesthesiology

Upper Division Course

199. Directed Research in Anesthesiology. (2 to 8) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

ANTHROPOLOGY

College of Letters and Science

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Carole H. Browner, Ph.D., *Chair*
P. Jeffrey Brantingham, Ph.D., *Vice Chair*

Professors

Andrew Apter, Ph.D.
Jeanne E. Arnold, Ph.D.
Robert Boyd, Ph.D.
Carole H. Browner, Ph.D., *in Residence*
Alessandro Duranti, Ph.D.
Alan Page Fiske, Ph.D.
Linda C. Garro, Ph.D.
Marjorie Harness Goodwin, Ph.D.
Akhil Gupta, Ph.D.
Sondra Hale, Ph.D.
Douglas W. Hollan, Ph.D.
Paul V. Kroskity, Ph.D.
Nancy E. Levine, Ph.D.
Joseph H. Manson, Ph.D.
Claudia I. Mitchell-Kernan, Ph.D.
Elinor Ochs, Ph.D.

Sherry B. Ortner, Ph.D.
Susan E. Pery, Ph.D.
Dwight W. Read, Ph.D.
Joan B. Silk, Ph.D.
Susan E. Slyomovics, Ph.D.
Charles S. Stanish, Ph.D.
Mariko Tamanoi, Ph.D.
Russell Thornton, Ph.D.
Thomas S. Weisner, Ph.D., *in Residence*
Yunxiang Yan, Ph.D.

Professors Emeriti

Nicholas G. Blurton Jones, Ph.D.
Karen B. Brodtkin, Ph.D.
Christopher B. Donnan, Ph.D.
Robert B. Edgerton, Ph.D. (*University Professor
Emeritus*)
Walter R. Goldschmidt, Ph.D.
Peter B. Hammond, Ph.D.
Allen W. Johnson, Ph.D.
John G. Kennedy, Ph.D.
Lewis L. Langness, Ph.D.
Jacques Maquet, Ph.D.
Michael Moerman, Ph.D.
Philip L. Newman, Ph.D.
Wendell H. Oswalt, Ph.D.
Merrick Posnansky, Ph.D.
Douglass R. Price-Williams, Ph.D.
James R. Sackett, Ph.D.
Johannes Wilbert, Ph.D.
Bobby Joe Williams, Ph.D.

Associate Professors

H. Clark Barrett, Ph.D.
P. Jeffrey Brantingham, Ph.D.
Jessica R. Cattellino, Ph.D.
Daniel Fessler, Ph.D.
Gail E. Kennedy, Ph.D.
Richard G. Lesure, Ph.D.
Kyeyoung Park, Ph.D.
Monica L. Smith, Ph.D.

Assistant Professors

Min Li, Ph.D.
Brooke A. Scelza, Ph.D.
Gregson T. Schachner, Ph.D.
C. Jason Throop, Ph.D.

Adjunct Assistant Professors

Robert B. Lemelson, Ph.D.
Tritia Toyota, Ph.D.

Scope and Objectives

Anthropology, the broadest of the social sciences, is the study of humankind. One of the strengths of anthropology as a discipline is its "holistic" or integrative approach; it links the life sciences and the humanities and has strong ties with disciplines ranging from biology and psychology to linguistics, political science, and the fine arts. Anthropological study is appropriate for people with a wide variety of interests: human cultures and civilizations both present and past, human and animal behavior, particular regions of the world such as Africa, Asia, Latin America, Oceania, etc.

The department recognizes the following four fields in anthropology:

Archaeology is the study of human cultures and the natural, social, ideological, economic, and political environments in which they operated in the recent and distant past. The graduate and undergraduate programs focus on methods of discovery (field and laboratory courses), strategies of analysis pertaining to long-term cultural evolution (theory, analytic, and topical courses), and the unfolding of prehistory in many regions of the world, including

North America, Mesoamerica, South America, and several parts of the Old World (regional courses). Faculty members have long-standing interests in the origins and evolution of complexity, including early human adaptations, the political organization of complex hunters/gatherers, the origins of early village life, and the emergence and florescence of ancient cities and states. Faculty members maintain programs of field research involving many students in North America, Mesoamerica, South America, and East and South Asia.

Biological anthropology is the study of humans and other primates from a Darwinian point of view. The program focuses on the evolutionary ecology of early hominids, extant primates, and contemporary humans and includes training in evolutionary theory, behavioral ecology, evolutionary psychology, paleoanthropology, paleoecology, primate behavior, and mathematical modeling. Faculty members associated with the program have engaged in fieldwork in Africa, Central America, and Southeast Asia where ongoing projects include work on primate behavior, hominid evolution, and evolutionary psychology.

Linguistic anthropology is an interdisciplinary field that addresses the manifold ways in which language, interaction, and culture mutually organize each other in different communities worldwide. Linguistic anthropologists at UCLA have a variety of backgrounds and research interests that include face-to-face communication, language contact and change, language and politics, language socialization across the lifespan, verbal art and performance, and the relation of language to ideology, mind, emotion, and identity. Courses are offered in ethnographic approaches to discourse analysis, field methods, language ideology, conversation analysis, language socialization, and communication in urban communities, as well as on cross-cultural language practices.

Sociocultural anthropology concerns the examination and understanding of social and cultural systems and processes, and the human capacities that enable them. Its goal is to understand their operation in specific settings and to understand the experience of individuals who live in these diverse systems. Faculty members have engaged in fieldwork in almost every area of the world, but most notably in Africa, Latin America, East and Southeast Asia, and Oceania. They have also engaged in ethnographic research among Americans with diverse ethnic identities and in various institutional settings.

Bridging the four primary subfields are several other dimensions of anthropological study, including psychocultural anthropology and medical anthropology. Courses are also offered in the history and theory of anthropology and a wide range of anthropological methods.

The department offers Bachelor of Arts and Bachelor of Science degrees and a minor in Anthropology for undergraduate students; the graduate program leads to the Master of Arts and Ph.D. degrees. Studies in anthropology are particularly valuable for students planning ca-

reers in which an understanding of human behavior and cultural diversity is desirable, such as business, education, law, medicine, nursing, public health, social welfare, and urban planning. Because of its breadth of outlook, anthropology also offers an ideal basis for those seeking a general education in our increasingly interdependent world.

Undergraduate Study

Anthropology B.A.

Preparation for the Major

Required: Anthropology 7, 8, 9, 33. Each course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better.

Transfer Students

Transfer applicants to the Anthropology B.A. major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: one human evolution course, one archaeology course, one sociocultural anthropology course, and one culture and communication course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

The major is designed for students interested in an anthropological understanding of human behavior. One of the strengths of anthropology is its cross-cultural "holistic" and integrative approach with many fields, such as biology, history, linguistics, the social sciences, and many of the humanities.

To provide a comprehensive understanding of the discipline as a whole, students must take two courses in the sociocultural anthropology field and one course in each of the other three fields (see "Scope and Objectives"). Students may take any upper division course in the given area to fulfill this requirement. Each course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better.

Students must complete 11 courses (44 to 52 units) as follows:

1. Two upper division courses in the sociocultural anthropology field and one in each of the other three fields (archaeology, biological anthropology, and linguistic anthropology)
2. One upper division region and society course
3. One upper division history/theory course
4. One upper division methodology course
5. Three additional upper division anthropology courses

Students are strongly encouraged to enroll in 3 to 4 units of 89 and/or 189 courses to gain small seminar experience. Ideally, at least one

of the units should be at the upper division level.

Concentrations for the Major

Concentrations, although not required, may help define and structure an Anthropology major when students want emphasis in one of the four major fields. Whether or not they opt for a concentration, the requirements for the major must still be satisfied. It is possible to use courses within their specified concentration to fulfill overlapping requirements for the major. Exceptions to the requirements below are by petition only. More detailed information on the concentrations is available from the undergraduate adviser.

1. *Archaeology:* Two courses from Anthropology 110P, 111, 183; two field or laboratory methods courses from 115P, 117, 117P, 117Q; one methods course from C115R or 129Q; one quantitative methods course—M186; two area courses from 112, 113P, 113Q, 113R, 114L, 114P, 114Q, 114R, C114S, 114T, M115A, M115B, 116, M119, 119P; one theory course from 120, 124A, 150, 152, 153, 153P, 156, 158, 185A, 185B, or 186P
2. *Biological Anthropology:* Anthropology 120; one quantitative methods course—M186; one methods course from 115P, 117, 117P, 117Q, or 143; one human biology and behavioral ecology course from 124A, 185A, 185B, or 186P; one paleoanthropology course from 121A, 121B, 121C, or both 12 and 129Q (credit is not granted for both courses 7 and 12); one human genetics course from Ecology and Evolutionary Biology 135 or Molecular, Cell, and Developmental Biology CM156; one primate behavior course from Anthropology 128A, 128B, or Ecology and Evolutionary Biology 129
3. *Linguistic Anthropology:* Anthropology 33, M140, Linguistics 20, Sociology M124A; two methods courses from Anthropology 141, 142A, 143, Linguistics 103; one ethnography course from Anthropology C144, M145, 146, or Linguistics 114; one course from Anthropology 133Q, 133R, 135A, 135B, 135C, Communication Studies 100, Linguistics 110, or 127; one term of a non-European language
4. *Sociocultural Anthropology:* Anthropology 130, 150; one primary course from three of the four subconcentrations listed below; two history, theory, and methods courses from 139, 182, M186, Sociology 101; one region and society course from M154Q, 158, 171, 172A, 172B, 172R, 173Q, 174P, 175Q, 175R, 175S, 175T, 175U, 175V, 176, or 177; two additional courses from one of the subconcentrations listed below:
 - a. *Applied and Development Subconcentration:* Primary course: Anthropology 161; additional courses: M155Q, 167, M168, M186, International Development Studies M100B

- b. *Ecological and Evolutionist Subconcentration*: Primary course: Anthropology 153; additional courses: 128A, 128B, 158, M186, 186P, Geography 140
- c. *Social Processes and Practice Subconcentration*: Primary courses: Anthropology M151, 152, M154P, M154Q; additional courses: 88A, 128A, 128B, 153, M155, 156, 158
- d. *Psychocultural and Medical Subconcentration*: Primary courses: Anthropology 135A, 135B, 135C, 135T; additional courses: 135S, M168

Anthropology B.S.

Preparation for the Major

Required: Anthropology 7, 8, 9, 33; Chemistry and Biochemistry 14A, 14B, 14BL, 14C, and 14CL, or 20A, 20B, 20L, 30A, and 30AL; Life Sciences 1, 2, 3, 4; Mathematics 3A, 3B, and 3C, or 31A and 31B; Physics 6A, 6B, and 6C, or 6AH, 6BH, and 6CH; Statistics 12. Each course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better.

Transfer Students

Transfer applicants to the Anthropology B.S. major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: one human evolution course, one archaeology course, one sociocultural anthropology course, one culture and communication course, two general biology courses for majors, one year of calculus, one year of general chemistry with laboratory, one year of general physics with laboratory, and one lower division organic chemistry course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

The major provides an overview of human evolution and is designed to prepare students for careers in anthropology and the health sciences, including medicine, dentistry, public health, and nursing. Each course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better.

Students must complete nine courses as follows:

- Two upper division courses in the sociocultural anthropology field and one in each of the other three fields (archaeology, biological anthropology, and linguistic anthropology)
- One upper division region and society course
- One upper division history/theory course
- Two additional upper division anthropology courses

Students are strongly encouraged to enroll in 3 to 4 units of 89 and/or 189 courses to gain

small seminar experience. Ideally, at least one of the units should be at the upper division level.

Honors Program

The honors program provides research-oriented students with opportunity to engage in original research and analysis under the close supervision of faculty members and culminates in an honors thesis. To be admitted students should have a cumulative grade-point average of 3.0 overall and a 3.5 cumulative GPA in their upper division anthropology courses. The application for admission must be submitted during Fall Quarter. Ideal candidates should have junior or senior standing and have completed at least two upper division anthropology courses. The proposal, research, analysis, and writing of the paper take place over four terms via Anthropology 191HA through 191HD. Course 191HA is taken in Winter Quarter and 191HB in Spring Quarter. Research should be done in summer, and courses 191HC and 191HD are taken in Fall and Winter Quarters of the graduation year. Students should contact the departmental honors adviser early in their studies for more information.

Anthropology Minor

Students who wish to take a series of courses in anthropology, but major in another discipline, may be interested in the Anthropology minor. Students select courses from the four fields within anthropology (archaeology, biological anthropology, linguistic anthropology, sociocultural anthropology), although they are encouraged to focus the body of their coursework within one field.

To enter the minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Courses (10 units): Two courses from Anthropology 7 or 12, 8, 9, 33.

Required Upper Division Courses (20 units minimum): Core course (Anthropology 111, 120, 130, M140, or 150) from one of the four anthropology fields listed above; four additional courses. Students are encouraged to concentrate their upper division coursework within one field and are required to consult with the undergraduate adviser in planning their program of study.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Anthropology offers Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.) degrees in Anthropology.

Anthropology

Lower Division Courses

7. Human Evolution. (5) Lecture, three hours; discussion, one hour. Required as preparation for both bachelor's degrees. Evolutionary processes and evolutionary past of human species. P/NP or letter grading.

8. Archaeology: Introduction. (5) Lecture, three hours; discussion, one hour; one field trip. Required as preparation for both bachelor's degrees. General survey of field and laboratory methods, theory, and major findings of anthropological archaeology, including case-study guest lectures presented by several campus archaeologists. P/NP or letter grading.

9. Culture and Society. (5) Lecture, three hours; discussion, one hour; fieldwork. Required as preparation for both bachelor's degrees. Introduction to study of culture and society in comparative perspective. Examples from societies around world to illustrate basic principles of formation, structure, and distribution of human institutions. Of special concern is contribution and knowledge that cultural diversity makes toward understanding problems of modern world. P/NP or letter grading.

12. Principles of Human Evolution: Comparative Analysis. (5) Lecture, three hours; discussion, one hour. Human population biology in conceptual framework of evolutionary processes. Emphasis on comparative primate behavior, structural anatomy, and fossil record. P/NP or letter grading.

33. Culture and Communication. (5) Lecture, three hours; discussion, one hour. Required as preparation for both bachelor's degrees. Introduction to study of communication from anthropological perspective. Formal linguistic methods compared with ethnographically oriented methods focused on context-bound temporal unfolding of communicative activities. Topics include language in everyday life and ritual events, socialization, literacy, multilingualism, miscommunication, political discourse, and art-making as cultural activity. P/NP or letter grading.

34. Introduction to Urban Speech Communities. (4) Lecture, three hours; discussion, one hour. Introduction to study of speech communities in metropolitan areas, with special focus on communities in Los Angeles. Emphasis on ways in which communities share and incorporate speech norms of urban society while maintaining rules for conduct and interpretation of speech within specific speech communities. Topics include language and identity, socialization, social dialects, and communication. P/NP or letter grading.

88A. Sophomore Seminars: Anthropology. (2) Seminar, 90 minutes. Limited to 20 lower division students. Readings and discussions designed to introduce students to current research in discipline. Culminating project may be required. May be repeated for credit with topic change. P/NP or letter grading.

Upper Division Courses

Archaeology

110P. Principles of Archaeology. (4) Lecture, three hours. Requisite: course 8. Intended for students interested in conceptual structure of scientific archaeology. Archaeological method and theory with emphasis on what archaeologists do and how and why they do it. Consideration of field strategies, stratigraphy, chronological frameworks, and other crucial principles of archaeological analysis and interpretation. P/NP or letter grading.

CM110Q. Introduction to Archaeological Sciences. (4) (Same as Ancient Near East CM169.) Lecture, three hours. Basic understanding of newly introduced methods and techniques throughout field of archaeology.

gy to implement them and to appreciate and evaluate results of their use by others who have embedded them in their scholarly publications or theoretical models. Systematic instruction in digital data management and mining, scientific analysis of materials (including geological and biochemical techniques), and visual presentation of data and research results (ranging from simple graphs to virtual reality). Concurrently scheduled with course CM210Q. P/NP or letter grading.

111. Theory of Anthropological Archaeology. (4) Lecture, three hours. Requisite: course 8. Method and theory with emphasis on archaeology within context of anthropology. Themes include theoretical developments over last 50 years, structure of archaeological reasoning, and selective survey of work on problems of general anthropological interest. P/NP or letter grading.

112. Old Stone Age Archaeology. (4) Lecture, three hours. Requisite: course 8. Development of Paleolithic cultural traditions in Europe, Africa, Asia, and New World. Emphasis on ordering and interpretation of archaeological data, Pleistocene geology and chronology, and relationship between human cultural and biological evolution. P/NP or letter grading.

113P. Archaeology of North America. (4) Lecture, three hours. Prehistory of North American Indians; evolution of Indian societies from earliest times to (and including) contemporary Indians; approaches and methods of American archaeology. P/NP or letter grading.

113Q. Prehistory and Ethnography of California. (4) Lecture, three hours. Requisite: course 8 or 9. From earliest Californians through 10,000 years of history, study of diversity in California's original peoples. Aspects of technology, ideology, ecology, and social/political organization. Historic impacts on California Indians by Euro-Americans. P/NP or letter grading.

113R. Southwestern Archaeology. (4) Lecture, three hours. Examination of prehistory of American Southwest from 11,000 years ago to historic times. Emphasis on describing and explaining cultural variation and change, employing evolutionary perspective. Special attention to advent of farming and settled towns, large-scale interactive networks, abandonment of Four Corners area, and historic cultures. P/NP or letter grading.

114L. Archaeology of Chiefdoms. (4) Seminar, three hours. Enforced requisite: course 8. Examination of chiefdom societies in anthropological record, with readings focused on theory and data from archaeological, historical, and ethnographic literature. Illustration of how people in ranked non-state societies created remarkably rich cultures over entire globe beginning several millennia ago in both Old World and Americas. Letter grading.

114P. Ancient Civilizations of Mesoamerica. (4) Lecture, three hours. Archaeology of pre-Hispanic native cultures of Mesoamerica from late Pleistocene through Spanish conquest, with emphasis on formative sociopolitical developments, classic period civilizations, and Aztec society as revealed by archaeology and early Spanish writing. P/NP or letter grading.

114Q. Topics in Archaeology of Mesoamerica. (4) Lecture, three hours. Designed for juniors/seniors. Specialized consideration of particular regions or topics in archaeology of pre-Hispanic Mesoamerica. Specific topics vary but include archaeology and ethnohistory, ancient Mesoamerican religions, Olmec art and archaeology, and Maya. P/NP or letter grading.

114R. Ancient Civilizations of Andean South America. (4) Lecture, three hours. Requisite: course 8 or 9. Pre-Hispanic and Conquest period native cultures of Andean South America, as revealed by archaeology and early Spanish writing. Incas and their predecessors in Peru, with emphasis on sociopolitical systems, economic patterns, religion, and aesthetic and intellectual achievements. P/NP or letter grading.

C114S. Comparative Study of Ancient States. (4) Lecture, three hours. Comparative anthropological study of first complex societies in Near East, Mesoamerica, and Andes, including early Egyptian, Uruk, Teotihuacan, classic Maya, Wari, and Tiwanaku, with

focus on political and economic structures of these societies and on causes of state development and collapse. Concurrently scheduled with course CM214S. P/NP or letter grading.

114T. Moche Civilization of Ancient Peru. (4) Lecture/demonstration, three hours. Requisite: course 114R. Moche civilization, which flourished on north coast of Peru between A.D. 100 and 800, as revealed by archaeology, iconography, ethnography, and early Spanish writing. Emphasis on Moche aesthetic, technology, and artistic achievements. Letter grading.

M115A-M115B. Historical Archaeology. (4) (Same as History M102A-M102B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading. **M115A.** World Perspective. Historical archaeology requires appreciation of historical sources, archaeology, and material culture. Thematic emphasis, with exploration of breadth of discipline both in Old World and Americas. **M115B.** American Perspective. Emphasis on historical archaeology in North America, particularly to some practical applications.

115P. Archaeological Field Training. (6 or 13) Lecture, two to three hours; fieldwork, to be arranged (nine hours minimum for 6 units, 50 hours minimum for 13 units). Requisite: course 8. Off-campus field archaeology course offered in either regular session or summer. Procedures of archaeological excavation, recording, mapping, surveying, and initial analysis of archaeological data. P/NP or letter grading.

115Q. Politics of Past. (4) Seminar, three hours. Requisite: course 8. Examination of social and cultural context of modern archaeology. Topics include legal frameworks governing archaeological practice, relationships between archaeologists and descendent peoples, and role of archaeology in current politics. P/NP or letter grading.

C115R. Strategy of Archaeology. (4) Seminar, three hours. Designed for juniors/seniors. Introduction to problem formulation, theory, and method in archaeology, with emphasis on development of research designs. Focus on how archaeological research is conceived and planned, with consideration of differing viewpoints and their usefulness. Concurrently scheduled with course C215R. Letter grading.

116. Archaeology of South Asia. (4) Lecture, three hours. Archaeology of Harappan, early historic, and medieval periods in Indian subcontinent. Investigation of large-scale social movements such as Buddhism, as well as consideration of how past is interpreted in present. P/NP or letter grading.

116P. Archaeology of Prehistoric China. (4) Lecture, three hours. Enforced requisite: course 8. Detailed survey of prehistoric archaeological sequence of China, ranging from early Pleistocene (about two million years ago) to initial rise of Chinese state (around 2100 B.C.). P/NP or letter grading.

M116S. Archaeological Landscapes of China. (4) (Same as Chinese M183.) Lecture, three hours; discussion, one hour. Declassified space images from Cold War era and open remote sensing data of 21st century provide new opportunities for studying landscape transformation in historical China. Combining lectures, library research, and hands-on analysis of archaeological sites on satellite images, investigation of changing historical and archaeological landscape in China during last 5,000 years. Social processes at various scales, from emergence of early cities to rise of metropolitan centers and formation of imperial landscapes. Letter grading.

117. Archaeological Laboratory Methods. (6) Lecture, three hours; laboratory, two to three hours. Requisite: course 8. Introduction to archaeological analysis of range of prehistoric cultural materials. Procedures of classification, analysis, data entry. Extensive laboratory work with lithic artifacts, vertebrate fauna, shellfish, plant remains, bone and shell tools, ceramics. P/NP or letter grading.

117P. Selected Laboratory Topics in Archaeology. (4) Lecture, three hours. Requisite: course 8. How archaeological research is furthered by specialized analysis of particular classes of cultural remains. Top-

ics may include animal bones, plants, ceramics, rock art. Hands-on experience working with collections and data. May be repeated for credit with topic change. P/NP or letter grading.

117Q. Intensive Laboratory Training in Archaeology. (6) Lecture, three hours; laboratory, three hours. Requisite: course 8. Archaeologists with special expertise in specific analytical techniques and topics oversee intensive laboratory training on one of following topics: zooarchaeology, ethnobotany, lithic analysis, ceramic analysis, etc. May be repeated for credit with topic change. P/NP or letter grading.

118. Selected Topics in Archaeology. (4) Lecture, three hours. Study of selected topics in archaeology. Consult *Schedule of Classes* for topics and instructors. May be repeated for credit with topic change. P/NP or letter grading.

M119. Topics in African History: Prehistoric Africa—Technological and Cultural Traditions. (4) (Same as History M164A.) Lecture, three hours; discussion, one hour (when scheduled). Preparation: one prior course in African history at UCLA. Designed for juniors/seniors. Survey of nondocumentary sources of early African history, with emphasis on archaeological evidence from origins of humanity until A.D. 1600. P/NP or letter grading.

119P. Cities Past and Present. (4) Lecture, three hours. Requisite: course 8 or 9. Examination of ancient and modern cities to evaluate how urban form developed and continues to thrive as human social phenomenon. Contemporary observations compared with archaeological case studies, including South America, Asia, Africa, and ancient Near East. Letter grading.

Biological Anthropology

120. Survey of Biological Anthropology. (4) Lecture, three hours. Requisite: course 7. Limited to majors and graduate anthropology students. Survey of biological anthropology including all major subareas. (Core course for biological field.) P/NP or letter grading.

121A. Primate Fossil Record. (4) Lecture, three hours. Requisite: course 7 or 12. Introduction to method and theory in paleoanthropology. Primate evolution, Cretaceous through Miocene. May be taken independently for credit. P/NP or letter grading.

121B. Australopithecines. (4) Lecture, three hours. Requisite: course 7 or 12. Morphology, ecology, and behavior of genus *Australopithecus*. History of their discoveries and their place in human evolution. May be taken independently for credit. P/NP or letter grading.

121C. Evolution of Genus *Homo*. (5) Lecture, three hours; discussion, one hour. Requisite: course 7 or 12. Origin and evolution of genus *Homo*, including archaic sapiens and Neanderthals. Morphology, ecology, and behavior of these groups. Course ends with appearance of modern humans. May be taken independently for credit. P/NP or letter grading.

121P. Reconstructing Hominid Behavior and Paleoecology. (4) Seminar, three hours. Use of paleontological, archaeological, ecological, and geological evidence to infer late Pliocene and early Pleistocene hominid behavior and environmental context of human evolution. P/NP or letter grading.

121Q. Paleoanthropology in Review. (6) Lecture, three hours; seminar, three hours. Corequisite: course 12. Limited to juniors/seniors. Designed for advanced students with interest in human evolution, fossil evidence, and theoretical constructs. Students attend course 12 lectures, plus three-hour seminar per week. P/NP or letter grading.

122P. Human Osteology. (4) Lecture, three hours; laboratory, four hours. Examination of human skeletal and muscular systems, concerned with both form and function. Students expected to recognize important anatomical landmarks on human skeleton, identify fragmentary bones, and know origins, insertions, and action of major muscles. How to sex and age skeletons and introduction to paleopathology. Letter grading.

124A. Human Behavioral Ecology. (4) (Formerly numbered 124.) Lecture, three hours. Recommended requisite: course 7 or Life Sciences 1. Survey of re-

search in human behavioral ecology. Review of natural and sexual selection, kin selection, and reciprocal altruism. Emphasis on current empirical studies of modern human behavior from evolutionary perspective, including social organization, sexual division of labor, parenting strategies, conflict, and cooperation. P/NP or letter grading.

124B. Evolutionary Psychology. (4) Lecture, three hours. Recommended requisite: course 7 or Life Sciences 1. Survey of research in evolutionary psychology. Review of relevant theory in evolution and genetics. Emphasis on empirical studies of modern human behavior from evolutionary perspective, including social behavior, decision making, language, culture, and child development. P/NP or letter grading.

124P. Evolution of Human Sexual Behavior. (4) Lecture, three hours; discussion, one hour. Recommended requisite: course 7 or 12. Examination of human sexual relations and social behavior from evolutionary perspective. Emphasis on theories and evidence for differences between men and women in their patterns of growth, maturation, fertility, mortality, parenting, and relations with members of opposite sex. Letter grading.

M125A. Great Adaptations: Origins of Complexity in Nature. (4) (Formerly numbered 125A.) (Same as Ecology and Evolutionary Biology M171.) Lecture, three hours. Enforced requisite: course 7 or Ecology and Evolutionary Biology 13 or 120 or Life Sciences 1. Evolution of complex adaptations in nature. Examination of fundamental processes underlying natural selection and evolution of adaptation: Darwin's postulates, constraints on adaptation, levels of explanation in biology, methods for identifying adaptations. Evaluation of examples of complex adaptations in nature. Letter grading.

126. Selected Topics in Biological Anthropology. (4) Lecture, three hours. Study of selected topics in biological anthropology. Consult *Schedule of Classes* for topics and instructors. May be repeated for credit with topic change. P/NP or letter grading.

M127. Animal Communication. (5) (Same as Applied Linguistics CM127 and Communication Studies M127.) Lecture, four hours. Designed for Anthropology, Applied Linguistics, and Communication Studies majors. Evolution, functions, design, and diversity of animal communication systems such as bird song, dolphin calls, whale song, primate social signals, and human language. Letter grading.

127P. Primate Evolution. (4) Lecture, three hours. Designed for juniors/seniors. Survey of primate paleontological and evolutionary record, encompassing prosimians, New and Old World monkeys, and hominoids. Attendant aspects of paleoecology and behavior. P/NP or letter grading.

128A. Primate Behavior Nonhuman to Human. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Review of primate behavior as known from laboratory and field studies. Theoretical issues of animal behavior, with special reference to nonhuman primates. Discussion of human behavior as product of such evolutionary processes. P/NP or letter grading.

128B. Behavioral Ecology of Primates. (4) Lecture, three hours. Requisite: course 128A. Analysis of evolution of sociality, sexual strategies, parenting behavior, fighting and contests, and altruism and cooperation in primate species. Letter grading.

129Q. Paleopathology. (4) Lecture, three hours. Designed for juniors/seniors. Evidence of disease and trauma, as preserved in skeletal remains of ancient and modern human populations. Discussions of medical procedures (trepanation), health status, ethnic mutilation (cranial deformation, footbinding), cannibalism, and sacrifice and roles such activities have played in human societies. Letter grading.

Cultural Anthropology

130. Study of Culture. (4) Lecture, three hours; discussion, one hour (when scheduled). Requisite: course 9. Designed for juniors/seniors. Twentieth-century elaboration and development of concept of cul-

ture. Examination of five major paradigms: culture as human capacity, as patterns and products of behavior, as systems of meaning and cognition, as generative structure and semiotic system, as component in social action and reality construction. (Core course for cultural field.) P/NP or letter grading.

131. Culture: What Makes It All Work. (4) Lecture, three hours. Preparation: two lower division social sciences courses (may be from different departments). Examination of some basic questions addressed by anthropologists in their study of what is meant by culture. Consideration of theories of culture and evolutionary origins of culture. Review of new analytic methods that allow students to begin to do quasi-experimental research into nature of culture and introduction to multiagent simulation as framework for modeling how culture can be both supra-organic and embedded in minds of culture bearers. P/NP or letter grading.

133P. Visual Anthropology: Documentary Photography. (4) Lecture, three hours. Photographs in anthropology serve many purposes: as primary data, illustrations of words in books, documentation for disappearing cultures, evidence of fieldwork, material objects for museum exhibitions, and even works of art. Topics include relationships between subject and treatment of image, between art photography and ethnographic documentation, role of museum photograph and caption, social practice of taking pictures, and case study on photographing Middle East and North Africa. P/NP or letter grading.

133Q. Symbolic Systems. (4) Lecture, three hours. Designed for juniors/seniors. Analysis of anthropological research and theory on cultural systems of thought, behavior, and communication expressed in symbolic mode (as distinguished from discursive, instrumental, and causal modes). Methods for study of symbolic meaning, including experiential approach. P/NP or letter grading.

133R. Aesthetic Systems. (4) Lecture, three hours. Designed for juniors/seniors. Provides framework for cross-cultural understanding of aesthetic phenomena that meets requirements of anthropological research. Human capacities for aesthetic experience; sociocultural formation of aesthetic production; ethno-aesthetics; experiential dimension of aesthetic production. Letter grading.

133S. Ethnomathematics and Anthropology of Numeration. (4) Lecture, three hours. Counting systems such as one, two, three, many or modern equivalent of one, two, three, infinity are widespread in human societies. Counting things is important part of everyday life. But indigenous thinking goes far beyond pragmatics of counting, and conceptual systems underlying counting are integrated with concepts people have about themselves and their societies. Numeracy is product of social life and not just reflection of one's experience with physical world. Exploration of different ways that indigenous mathematical thinking is embedded in human societies and cultures, ranging from use of fractals in African art to algebra of kinship terminologies to cosmological systems formulated around concepts of numbers. P/NP or letter grading.

M134. Cultural Construction of Gender and Sexuality: Homosexualities. (4) (Same as Honors Collegium M129 and Lesbian, Gay, Bisexual, and Transgender Studies M134.) Seminar, three hours. Comparative analysis of role of environment, history, and culture in structuring of patterns of same-sex erotic behavior in Asia, Africa, Middle East, Pacific, Caribbean, and aboriginal America. P/NP or letter grading.

135A-135B. Introduction to Psychological Anthropology. (4-5) P/NP or letter grading:

135A. Historical Development. (4) Lecture, three hours; discussion, one hour (when scheduled). Enforced requisite: course 9. Limited to juniors/seniors. Survey of field of psychological anthropology, with emphasis on early foundations and historical development of field. Topics include study of personality, pathology and deviance, altered states of consciousness, cognition, motivation, and emotion in different cultural settings. P/NP or letter grading.

135B. Current Topics and Research. (5) Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Survey of field of psychological anthropology, with emphasis on current topics and research. Topics include study of personality, pathology and deviance, altered states of consciousness, cognition, motivation, and emotion in different cultural settings. P/NP or letter grading.

135C. Seminar: Psychocultural Studies. (4) Seminar, three hours. Requisite: course 9. Firsthand exposure to current research in psychocultural studies. Various university scholars discuss their on-going research. Using these presentations as models, students develop proposals for future research. P/NP or letter grading.

135S. Anthropology of Deviance and Abnormality. (4) Lecture, three hours. Requisite: course 9. Relationship between culture and recognition of, responses toward, and forms of deviant and abnormal behavior. Letter grading.

135T. Psychoanalysis and Anthropology. (4) Lecture, three hours; discussion, one hour (when scheduled). Exploration of mutual relations between anthropology and psychoanalysis, considering both theory and method. History of and current developments in psychoanalysis; anthropological critiques of psychoanalytic theory and method, toward cross-cultural psychoanalytic approach. Letter grading.

136Q. Laboratory for Naturalistic Observations: Developing Skills and Techniques. (4) Laboratory, three hours. Skill of observing and recording behavior in natural settings, with emphasis on field training and practice in observing behavior. Group and individual projects. Discussion of some uses of observations and their implications for research in social sciences. P/NP or letter grading.

137. Selected Topics in Cultural Anthropology. (4) Lecture, three hours. Study of selected topics in cultural anthropology. Consult *Schedule of Classes* for topics and instructors. May be repeated for credit. P/NP or letter grading.

139. Field Methods in Cultural Anthropology. (5) Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Introduction to skills and tools of data ascertainment through fieldwork in cultural anthropology. Emphasis on techniques, methods, and concepts of ethnographical research and how basic observational information is systematized for presentation, analysis, and cross-cultural comparison. Letter grading.

Linguistic Anthropology

M140. Language in Culture. (5) (Same as Linguistics M146.) Lecture, three hours; discussion, one hour; fieldwork, two hours. Requisite: course 33 or Linguistics 20. Study of language as aspect of culture; relation of habitual thought and behavior to language; and language and classification of experience. Holistic approach to study of language, with emphasis on relationship of linguistic anthropology to fields of biological, cultural, and social anthropology, as well as archaeology. (Core course for linguistics field.) P/NP or letter grading.

141. Ethnography of Everyday Speech. (5) Lecture, three hours; fieldwork. Requisite: course 33. Designed for juniors/seniors. Course has two interrelated objectives: (1) to introduce students to ethnography of communication—description and analysis of situated communicative behavior—and sociocultural knowledge that it reflects and (2) to train students to recognize, describe, and analyze relevant linguistic, proxemic, and kinesic aspects of face-to-face interaction. Letter grading.

142A-142B. Microethnography of Communication. (4) Lecture, three hours. Requisite: course M140. Course 142A or Sociology M124A is requisite to 142B. Students make primary records (sound tape, videotape, or film) of naturally occurring social interactions that are analyzed in class for interactive tasks, resources, and accomplishments displayed. Labora-

tory and fieldwork outside of class and minimal fees to offset costs of equipment maintenance and insurance required. P/NP or letter grading.

M142R. Culture of Jazz Aesthetics. (4) (Same as Ethnomusicology M130 and World Arts and Cultures M136.) Lecture, three hours. Requisite: course 9 or 33 or Ethnomusicology 20A or 20B or 20C or World Arts and Cultures 20. Aesthetics of jazz from point of view of musicians who shaped jazz as art form in 20th century. Listening to and interacting with professional jazz musicians who answer questions and give musical demonstrations. Analytical resources and historical knowledge of musicians and ethnomusicologists combined with those interested in jazz as cultural tradition. P/NP or letter grading.

143. Field Methods in Linguistic Anthropology. (4) Lecture, three hours. Requisite: course M140. Practice in eliciting linguistic data from informants. Initial focus on phonetic transcription and phonological structures; introduction to skills and strategies pertinent to morphological, syntactic, and textual analysis. Practice with native speakers of non-Indo-European languages is normally important aspect of student participation. P/NP or letter grading.

C144. Native American Languages and Cultures. (4) Lecture, three hours. Requisite: course 33 or American Indian Studies M10. Introduction and comparative analysis of sociocultural aspects of language use in Native North American Indian speech communities. Specific foci include both micro- and macro-sociolinguistic topics. Micro-sociolinguistic topics are comprised of such issues as multilingualism, cultural differences regarding appropriate communicative behavior and variation within speech communities (e.g., male and female speech, baby talk, ceremonial speech, etc.). Macro-sociolinguistic considerations include language contact and its relationship to language change and language in American Indian education. Concurrently scheduled with course C243P. P/NP or letter grading.

M145. Afro-American Sociolinguistics: Black English. (4) (Same as Afro-American Studies M166.) Lecture, three hours. Basic information on Black American English, important minority dialect in U.S. Social implications of minority dialects examined from perspectives of their genesis, maintenance, and social functions. General problems and issues in fields of sociolinguistics examined through case-study approach. Letter grading.

146. Language and Culture of Polynesia: Past, Present, and Future. (4) Lecture, three hours. Requisite: course 33. Introduction to Polynesian cultures and languages, with particular emphasis on past and present sociocultural systems, patterns of language structure and language use, verbal art, language socialization strategies, and forms of cultural assimilation and resistance to European contact. Fieldwork on contemporary Polynesian cultures in U.S. urban areas. Letter grading.

147. Selected Topics in Linguistic Anthropology. (4) Lecture, three hours. Study of selected topics in linguistic anthropology. Consult *Schedule of Classes* for topics and instructors. May be repeated for credit. P/NP or letter grading.

M148W. Talk and Body. (5) (Formerly numbered M148.) (Same as Applied Linguistics M161W and Communication Studies M123W.) Lecture, four hours; discussion, one hour. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Relationship between language and human body raises host of interesting topics. New approaches to phenomena such as embodiment become possible when body is analyzed, not as isolated entity, but as visible agent whose talk and action are lodged within both processes of human interaction and rich settings where people pursue courses of action that count in their lives. Satisfies Writing II requirement. Letter grading.

149A. Language and Identity. (4) Lecture, three hours. Requisite: course 33. Language as social phenomenon. Introduction to several angles from which

language use can be critically examined as integral to interactions between individuals and between social groups. Letter grading.

149B. Gender and Language in Society. (4) Lecture, three hours. Requisite: course 33. Examination of role language plays in social construction of gender identities and ways in which gender impacts language use and ideologies. Letter grading.

149C. Multilingualism: Communities and Histories in Contact. (4) Lecture, three hours. Requisite: course 33. Examination of communicative, political, and poetic aspects of use of two or more languages (multilingualism) by individuals and by groups. Broader themes in social theory, anthropological inquiry, sociolinguistics, and literary studies in lectures to contextualize class readings. Letter grading.

149D. Language, Culture, and Education. (4) Lecture, three hours. Requisite: course 33. Examination of various ways in which culture, and language in particular, influence not only educational processes and outcomes, but also very conceptions of what normal development processes and desirable educational outcomes are. Letter grading.

M149E. Language Socialization. (4) (Same as Applied Linguistics M125.) Seminar, four hours. Exploration of process of socialization through language, and socialization to use language across lifespan, across communities of practice within single society, and across different ethnic and socioeconomic groups. Examination of ways in which verbal interaction between novices and experts is structured linguistically and culturally. Letter grading.

Social Anthropology

150. Study of Social Systems. (4) Lecture, three hours; discussion, one hour (when scheduled). Enforced requisite: course 9. Introduction to more specialized social anthropology courses. Evaluation of variation in sociocultural systems, with special emphasis on forms of inequality. Basic frameworks of anthropological analysis; historical context and development of social anthropology discipline. Letter grading.

M151. Marriage, Family, and Kinship. (4) (Same as Women's Studies M151.) Lecture, three hours. Requisite: course 9. Examination of understandings of kinship in cross-cultural perspective and impact of kinship on interpersonal relationships, gender roles, and sociocultural systems. Readings from popular materials and formal ethnographic accounts. P/NP or letter grading.

152. Politics: Tribe, State, Nation. (4) Lecture, three hours. Cross-cultural examination of politics and political organization. Law and maintenance of order; corporate groups; ideology. Relations of political institutions to other institutions of society and to issues of identity and representation. Letter grading.

153. Evolution of Human Societies. (4) Lecture, three hours. Review of economic and ecological approaches to studying organization of production and exchange. Economic life viewed from three perspectives: adaptation, decision making, and social structure. Comparative theories discussed in context of ethnographic evidence from wide variety of cultural systems. P/NP or letter grading.

153P. Economic Anthropology. (4) Lecture, three hours. Requisite: course 9. Introduction to anthropological perspectives for interpretation of economic life and institutions. Economic facts to be placed in their larger social, political, and cultural contexts; examination of modes of production, distribution, and consumption of goods and services in their relation to social networks, power structures, and institutions of family, kinship, and class. P/NP or letter grading.

M154P. Gender Systems: North America. (4) (Same as Women's Studies M154P.) Lecture, three hours. Recommended preparation: prior anthropology or women's studies courses. Designed for junior/senior social sciences majors. Comparative study of women's lives and gender systems in North American cultures from anthropological perspective. Critical re-

view of relevant theoretical and practical issues using ethnography, case study, and presentations. P/NP or letter grading.

M154Q. Gender Systems: Global. (4) (Same as Women's Studies M154Q.) Lecture, three hours. Recommended preparation: prior anthropology or women's studies courses. Designed for junior/senior social sciences majors. Comparative study of gender systems globally from anthropological perspective. Outline of material conditions of women's lives in world—gender division of labor, relationship of gender to state, and colonialism and resistance movements. P/NP or letter grading.

M155. Women's Voices: Their Critique of Anthropology of Japan. (4) (Same as Women's Studies M155.) Lecture, three hours. Preparation: introductory sociocultural anthropology course. Anthropology of Japan has long viewed Japan as homogeneous whole. Restoration of diversity and contradiction in it by listening to voices of Japanese women in various historical contexts. P/NP or letter grading.

M155Q. Women and Social Movements. (4) (Same as Women's Studies M155Q.) Lecture/discussion, three hours. Recommended preparation: prior women's studies or anthropology courses. Comparative studies of social movements (e.g., nationalist, socialist, liberal/reform), beginning with Russia and China and including Cuba, Algeria, Guinea-Bissau, Mozambique, Nicaragua, and Iran. Analysis of women's participation in social transformations and centrality of gender interests. P/NP or letter grading.

156. Anthropology of Religion. (4) Lecture, three hours. Survey of various methodologies in comparative study of religious ideologies and action systems, including understanding particular religions through descriptive and structural approaches, and identification of social and psychological factors that may account for variation in religious systems cross-culturally. P/NP or letter grading.

157. Selected Topics in Social Anthropology. (4) Lecture, three hours. Study of selected topics in social anthropology. Consult *Schedule of Classes* for topics and instructors. May be repeated for credit. P/NP or letter grading.

158. Hunting and Gathering Societies. (4) Lecture, three hours. Requisite: course 9. Survey of hunting and gathering societies. Examination of their distinctive features from both ecological and cultural viewpoints. Discussion of possibility of developing general framework for synthesizing these two viewpoints. Use of this synthesis as basis for illustrating relevance of hunting and gathering societies as understanding of complex societies. P/NP or letter grading.

158P. Pastoral Nomads. (4) Lecture, three hours. Requisite: course 9 or 150. Survey of pastoral nomad societies. Consideration of environmental and social demands of livestock domestication and production. Focus on ecological features, cultural practices, and social organization, with special attention to historical interactions between pastoral nomads and settled peoples. Letter grading.

M158Q. Past Societies and Their Lessons for Our Own Future. (5) (Same as Geography M153 and Honors Collegium M152.) Lecture, two hours; discussion, two hours. Examination of modern and past tribal and band societies (Amazonian Indians, Kalahari San, New Guineans, and others) that met varying fates, as background to examination of how modern state societies are coping or failing to cope with similar issues. P/NP or letter grading.

159. Warfare and Conflict. (4) Lecture, three hours. Examination of conflict and violent confrontation as these have been treated in anthropological literature. Cross-cultural comparison of institutions such as raids, feuds, ritual warfare. Consideration of application of anthropology to study of militaries, modern warfare, and large-scale ethnic conflict. Letter grading.

M159P. Constructing Race. (4) (Same as Afro-American Studies M159P and Asian American Studies M169.) Lecture, three hours. Examination of race, socially constructed category, from anthropological perspective. Consideration of development of racial

categories over time and in different regions, racial passing, multiracial identity in U.S., whiteness, race in popular culture, and race and identity. P/NP or letter grading.

Applied Anthropology

161. Development Anthropology. (4) Lecture, three hours. Requisite: course 9. Designed for juniors/seniors. Comparative study of planned and unplanned development, in particular as it affects rural societies. Emphasis on impact of capital, technological change and gender differences, economic differentiation and class, urban/rural relations, and migration. Discussion of theoretical issues in light of case studies. P/NP or letter grading.

163. Selected Topics in Applied Anthropology. (4) Lecture, three hours. Study of selected topics in applied anthropology. Consult *Schedule of Classes* for topics and instructors. May be repeated for credit. P/NP or letter grading.

M164. Afro-American Experience in U.S. (4) (Same as Afro-American Studies M164.) Lecture, three hours. Promotes understanding of contemporary sociocultural forms among Afro-Americans in U.S. by presenting comparative and diachronic perspective on Afro-American experience in New World. Emphasis on utilization of anthropological concepts and methods in understanding origins and maintenance of particular patterns of adaptation among black Americans. P/NP or letter grading.

167. Urban Anthropology. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for junior/senior social sciences majors. Introduction to modern industrial cities and urban life. Examination of notion of urban space in context of social relations by drawing from historical and cross-cultural urban ethnographies. Urban space is created according to needs of capital and actions of urban subjects. Exploration of ways in which class, gender, race, and geography shape or contest perspectives and priorities on urban issues. P/NP or letter grading.

M168. Culture, Illness, and Healing. (4) (Same as Nursing M158.) Lecture, four hours. Medical anthropology is organized around holistic exploration of ways in which health, illness, and medical practices are socially and culturally mediated. Topics include comparing illness experiences, understandings about health and illness, patterns of care seeking, therapeutic practices, and medical systems in context of different social and cultural settings, including our own. P/NP or letter grading.

CM168P. Perspectives on Health of Native North Americans. (4) (Same as American Indian Studies CM168P.) Seminar, three hours. Recommended preparation: some knowledge of medical anthropology and/or history and contemporary situation of first peoples of North America. Examination of different perspectives related to health and healthcare of Native North Americans (within present boundaries of U.S. and Canada) in relation to cultural, social, political, and economic aspects of changing historical context. Concurrently scheduled with course CM268P. P/NP or letter grading.

C169R. Repatriation of Native American Human Remains and Cultural Objects. (4) Lecture, two hours; discussion, one hour. Native Americans have recently been successful in obtaining passage of federal and state laws repatriating human remains and cultural objects to them. Examination of this phenomenon. Concurrently scheduled with course C269R. Letter grading.

Regional Cultures

Africa

171. Sub-Saharan Africa. (4) Lecture, three hours. Issues of ecology and political economy; continuing impacts of colonialism, nationalism, and current challenges for development; changes in social relations. Examination of Africa's significance to development of anthropology. Cultural background for understanding events in contemporary Africa provided. Letter grading.

M171P. Culture Area of Maghrib (North Africa). (4) (Same as Arabic M171 and History M108C.) Lecture, three hours. Designed for juniors/seniors. Introduction to North Africa, especially Morocco, Algeria, Tunisia, and Libya, also known as Maghrib or Tamazgha. Topics include changing notions of personal, tribal, ethnic, linguistic and religious identities; colonialism; gender and legal rights, changing representations of Islam, and religions in region's public spaces. P/NP or letter grading.

North America

172A. Native North Americans. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Consideration of diversity of Native American societies north of Mexico, including their origins, formation, and development. Particular attention to subsistence systems and their relationship to social institutions and cultural practices, especially religion. Letter grading.

172B. Change and Continuity among Native North Americans. (4) Lecture, three hours. Requisite: course 172A. Consideration of tremendous change Native American societies and cultures have undergone since European contact. Emphasis on patterns of adaptation and continuity as Native Americans confronted colonization and its implications. Letter grading.

172R. Cultures of Pueblo Southwest. (4) Lecture, three hours. Survey of ethnographic and ethnohistorical research of Pueblo Indians (Hopi, Zuni, Tanoan, and Keresan) and their immediate neighbors. Basic information on history, languages, social organization, and traditional cultural systems of these groups. P/NP or letter grading.

Middle America

173Q. Latin American Communities. (4) Lecture, three hours. Overview of social and cultural anthropology of small communities in Latin America. Similarities and contrasts in social organization and interpersonal relations described in context of economic, political, and cultural environments. P/NP or letter grading.

South America

174P. Ethnography of South American Indians. (4) Lecture, three hours. Introduction to ethnography of South American Indians, with special emphasis on Lowland South America. Survey of history and development of man and society in this world area and examination of exemplary cultures symptomatic of various levels of cultural achievement. P/NP or letter grading.

Asia

175Q. Ideology and Social Change in Contemporary China. (4) Lecture, three hours. Introduction to sociocultural changes in China from 1949 to present. Topics include ideology and politics in everyday life, social stratification and mobility, cultural construction of socialist person, changes in courtship, marriage, and family, and political economy of reforms in post-Mao era. P/NP or letter grading.

175R. Societies of Central Asia. (4) Lecture, three hours. Overview of culture and society among diverse peoples of Inner Asia, including Mongolia, Tibet, and Soviet Central Asia. Topics include environment and economic adaptation, politics in traditional isolation and within framework of recent national integration, kinship, forms of marriage and status of women, religion and social order in Hindu/Buddhist culture contact zone, and current problems of modernization. P/NP or letter grading.

175S. Japan. (4) Lecture, three hours. Overview of contemporary Japanese society. General introduction, kinship, marriage and family life, social mobility and education, norms and values, religions, patterns of interpersonal relations, social deviance. P/NP or letter grading.

175T. Civilizations of East Asia. (4) Lecture, three hours. General anthropological introduction to closely linked civilizations of China, Korea, and Japan, providing comparative analysis of fundamental institu-

tions such as family, state, and religion and assessing effects of urbanization and industrialization. Letter grading.

175U. Cultures of Indonesian Archipelago. (4)

Lecture, three hours. Introduction to past and contemporary civilizations and cultures of Indonesia, including Javanese, Balinese, Toraja, Dayak, and Minangkabau. Geographical, ecological, and historical overview with examination of such topics as religious and political ideas and institutions, art, symbolism and ritual, illness and healing, and psychological issues and themes. P/NP or letter grading.

175V. Ethnology of Korea: Re-Presenting Lives in Contemporary South Korea. (4) Lecture, three hours. Examination of South Korea's contemporary structural positioning, with focus on its dynamic development out of history of colonialism and war to capitalism; multiple and conflicting linkages of Korean people involving class, gender, family/kinship, and nation. Letter grading.

175Y. Chinese Family and Kinship. (4) Lecture, three hours. Examination of family and kinship organization in traditional Chinese society, socialist transformation of these institutions on mainland China during Maoist era, and role of familial culture in economic development of Taiwan, Hong Kong, Singapore, and mainland China in post-Mao era. Letter grading.

Middle East

176. Culture Area of Middle East. (4) Lecture, three hours. Study of Middle East has suggested many theories as to developmental history of humankind, evolution of human society, birth of monotheism, and origin of agriculture, trade, and cities. Presentation of anthropological material relevant to understanding Middle East as culture area, and Islam as basis of its shared tradition. Letter grading.

Pacific

177. Cultures of Pacific. (4) Lecture, three hours. Four major culture areas of Australia, Melanesia, Polynesia, and Micronesia. General geographical features, prehistory, and language distribution of whole region. Distinctive sociocultural features of each culture area presented in context of their adaptive significance. P/NP or letter grading.

Regional Cultures

179. Selected Topics in Regional Cultures. (4) Lecture, three hours. Study of selected topics in regional cultures. Consult *Schedule of Classes* for topics and instructors. May be repeated for credit. P/NP or letter grading.

History, Theory, and Method

181. Critical Social Theory. (4) Seminar, three hours. Requisite: course 9. Limited to juniors/seniors. In-depth introduction to work of classic social theorists, Karl Marx and Max Weber. Examination of their influence on anthropology. Exploration of recent attempts to synthesize both perspectives. Letter grading.

182. History of Anthropology. (4) Lecture, three hours. Brief survey of development of Western social science, particularly anthropology, from Greek and Roman thought to emergence of evolutionary theory and concept of culture in late 19th century. "Root paradigm" of Western social science and its influence on such notables as Durkheim, Freud, Hall, Lombroso, Marx, Piaget, Terman, and others. Consideration of how this influences ethnocentrism and Eurocentrism, sexism, racism, perception of deviance, and view of culture in general. P/NP or letter grading.

183. History of Archaeology. (4) Lecture, three hours. Preparation: at least one upper division archaeology course. Development of world archaeology from Renaissance to present, stressing how each major branch of archaeology has evolved special character determined by peculiarities of its own data, methods, and intellectual affiliation. P/NP or letter grading.

185A-185B. Theoretical Behavioral Ecology. (4-4)

Lecture, three hours. Preparation: one upper division introduction to behavioral ecology course, one university-level mathematics course (preferably calculus or probability and statistics). Course 185A is requisite to 185B. Students expected to do simple algebra, elementary calculus, and probability. Rich body of mathematical theory describing evolution of animal behavior exists. Introduction to this body of theory at pace and mathematical level that allows students to grasp this information. Within each area of theory (e.g., kin selection, optimal foraging theory, etc.), presentation of basic corpus of models so that students understand assumptions that underlie models, and how main results are derived. Presentations supplemented by survey of results printed in literature, especially those derived using more advanced methods. Letter grading.

M186. Formal Modeling and Simulations in Social Sciences. (4) (Same as Honors Collegium M150 and Human Complex Systems M100.) Lecture, three hours. Exploration of different approaches to modeling empirical phenomena of concern to social sciences. Topics include utility models, learning models, decision models, group competition models, and evolutionary models. Use of multiagent computer simulations and group exercises to explore emergent behaviors among individuals interacting according to models for behavior. Discussion of advantages and drawbacks of more traditional mathematical modeling. Review of alternative forms of formal representations of hypothesized processes and issues related to verification of simulations. P/NP or letter grading.

186P. Models of Cultural Evolution. (4) Lecture, two hours; discussion, one hour. Requisite: course 7. Introduction to Darwinian models of cultural evolution. How organic evolution has shaped capacity for culture. How processes of cultural transmission and modification explain cultural variation in space and time. P/NP or letter grading.

Special Studies

191. Variable Topics Research Seminars: Anthropology. (4) Seminar, three hours. Research seminar on selected topics in anthropology. Reading, discussion, and development of culminating project. Consult *Schedule of Classes* for topics and instructors. May be repeated for credit with topic change. P/NP or letter grading.

191HA. Beginning Seminar. (4) Seminar, three hours. Limited to anthropology honors program students. Survey of major research strategies in anthropology to aid honors students in developing research proposals. Letter grading.

191HB. Field Methods. (4) Seminar, three hours. Limited to anthropology honors program students. Survey of major field methods in anthropology to prepare students to conduct their own field research. Letter grading.

191HC. Data Analysis. (4) Seminar, three hours. Limited to anthropology honors program students. Survey of major forms of data analysis in anthropology to aid honors students in analysis of their own research data. Letter grading.

191HD. Writing for Anthropology. (4) Seminar, three hours. Limited to anthropology honors program students. Teaching of writing skills, with focus on how to write honors theses. Letter grading.

193. Journal Club Seminars: Anthropology. (1) Seminar, one hour. Limited to undergraduate students. Discussion of current readings in discipline. May be linked with speaker series. May be repeated for credit with topic change. P/NP grading.

M193P. Journal Club Seminars: Human Complex Systems. (1) (Same as Human Complex Systems M193P.) Seminar, one hour. Limited to undergraduate students. Discussion of current readings in discipline. May be linked with speaker series. May be repeated for credit with topic change. P/NP grading.

194. Research Group Seminars: Anthropology. (1) Seminar, one hour. Limited to undergraduate students who are part of research group or internship. Discussion of research methods and current literature

in discipline or of research of faculty members or students. May meet concurrently with graduate research seminar. May be repeated for credit with topic change. P/NP grading.

197. Individual Studies in Anthropology. (2 to 8) Tutorial, to be arranged. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned readings and tangible evidence of mastery of subject matter (e.g., paper or other product) required. May be repeated for credit. Individual contract required. P/NP or letter grading.

199. Directed Research in Anthropology. (2 to 8) Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200. Proseminar: Practice of Anthropology. (4) Seminar, three hours. Required of new graduate students. Discussion of anthropology as four-field discipline and interconnections among four major fields. Practice of anthropology as exemplified through faculty presentations of how research is conceived, formulated, and executed. Students develop individual research proposals. Letter grading.

200P. Cultural Anthropology Field Preparation. (4) Seminar, three hours. Requisite: course 200. Follows course 200 as field preparation for summer research for cultural anthropologists. Students develop specific research methods and present them in seminar. Practical issues (visas, community entry, health concerns) also addressed. S/U or letter grading.

M201A-M201B. Graduate Core Seminars: Archaeology. (4-4) (Same as Archaeology M201A-M201B.) Seminar, three hours. Course M201A is required of anthropology students in archaeology field. Seminar discussions based on carefully selected list of 25 major works related to development of archaeology in social sciences (M201A) and humanities (M201B). Core seminars provide students with foundation in breadth of knowledge required of professional archaeologists. Archaeological historiography, survey of world archaeology, and archaeological techniques. Emphasis on appreciation of multidisciplinary background of modern archaeology and relevant interpretative strategies. May be repeated for credit with consent of adviser. S/U or letter grading.

202. Biological Anthropology Colloquium. (4) Seminar, three hours. Selected topics on status of current research in biological anthropology. May be repeated for credit. S/U or letter grading.

203A-203B-203C. Core Seminars: Sociocultural Anthropology. (4-4-4) Seminar, three hours. Letter grading:

203A. Historical and Philosophical Foundations of Anthropology. (4) Seminar, three hours. Preparation: two courses from 130, 135A, 150. Examination of theoretical writings that shaped foundations of anthropology as scholarly discipline. Consideration of writings of Durkheim, Weber, Marx, and others. Letter grading.

203B. Sociocultural Systems and Ethnography: Anthropology at Mid-Century. (4) Seminar, three hours. Recommended requisite: course 203A. Examination of development of major schools of sociocultural thought during middle decades of 20th century. Emphasis on formation of sociocultural theories, concepts, and methodologies found in contemporary anthropology. Letter grading.

203C. Scientific and Interpretive Frameworks in Contemporary Anthropology. (4) Seminar, three hours. Recommended requisite: course 203B. Examination of selected contemporary works and issues in field of sociocultural anthropology. Letter grading.

204. Core Seminar: Linguistic Anthropology. (4) Seminar, three hours. Theoretical and methodological foundations of study of language structure and language use from sociocultural perspective. Discussion of linguistic, philosophical, psychological, and anthro-

pological contributions to understanding of verbal communication as social activity embedded in culture. S/U or letter grading.

Archaeology

210. Analytical Methods in Archaeological Studies. (4) Lecture, three hours. Preparation: one term of statistics. Data analysis procedures in archaeology. Emphasis on conceptual framework for analysis of archaeological data, beginning at level of attribute and ending at level of region. S/U or letter grading.

CM210Q. Introduction to Archaeological Sciences. (4) (Same as Ancient Near East CM269.) Lecture, three hours. Basic understanding of newly introduced methods and techniques throughout field of archaeology to implement them and to appreciate and evaluate results of their use by others who have embedded them in their scholarly publications or theoretical models. Systematic instruction in digital data management and mining, scientific analysis of materials (including geological and biochemical techniques), and visual presentation of data and research results (ranging from simple graphs to virtual reality). Concurrently scheduled with course CM110Q. S/U or letter grading.

211. Classification in Archaeology: Method and Theory. (4) Seminar, three hours. Limited to graduate anthropology and archaeology students. Discussion of issues that have guided arguments about how archaeological classification of artifacts should be conducted, with focus on ceramic classification and discovery of cultural types. Methods for implementing discovery approach to classification illustrated with lithic and pottery examples. Review of relationship between classification, style, and function. S/U or letter grading.

212P. Selected Topics in Hunter/Gatherer Archaeology. (4) Seminar, three hours. Prehistory and ethnohistory of hunter/gatherer peoples. Consideration of range of issues, including but not limited to technological innovations, exchange systems, settlement and mobility, and social change. May be repeated for credit. S/U or letter grading.

M212S. Selected Laboratory Topics in Archaeology. (4) (Same as Archaeology M205A.) Lecture, three hours. Designed for graduate students in archaeology or in other departments. Specialized analysis of particular classes of cultural remains. Topic may be one of following: zooarchaeology, paleoethnobotany, ceramics, lithic analysis, rock art. Laboratory experience with collections and data. May be repeated for credit with topic change. S/U or letter grading.

M212T. Intensive Laboratory Training in Archaeology. (6) (Same as Archaeology M205B.) Lecture, three hours; laboratory, two hours minimum. Advanced laboratory training for graduate students with extended laboratory hours. Special laboratory-based topics, including but not limited to lithic analysis, ceramic analysis, zooarchaeology, and paleoethnobotany. May be repeated for credit with topic change. S/U or letter grading.

213. Selected Topics in Old World Archaeology. (4) Seminar, three hours. May be repeated for credit. S/U or letter grading.

214. Selected Topics in Prehistoric Civilizations of New World. (4) Lecture, three hours. Mesoamerican and Andean civilizations normally constitute major focus of seminar. May be repeated for credit. S/U or letter grading.

CM214S. Comparative Study of Ancient States. (4) (Same as Archaeology M214.) Lecture, three hours. Comparative anthropological study of first complex societies in Near East, Mesoamerica, and Andes, including early Egyptian, Uruk, Teotihuacan, classic Maya, Wari, and Tiwanaku, with focus on political and economic structures of these societies and on causes of state development and collapse. Concurrently scheduled with course C114S. S/U or letter grading.

215. Field Training in Archaeology. (6 or 12) Lecture, two to three hours; fieldwork, eight or more hours (6 units) or 50 or more hours (12 units). Off-campus field archaeology course offered in regular session or summer. Intensive training in archaeologi-

cal excavation, mapping, surveying, recording, preliminary analysis of field data, and project organization/supervision. May be repeated for credit. S/U or letter grading.

C215R. Strategy of Archaeology. (4) Seminar, three hours. Introduction to problem formulation, theory, and method in archaeology, with emphasis on development of research designs. Focus on how archaeological research is conceived and planned, with consideration of differing viewpoints and their usefulness. Concurrently scheduled with course C115R. Complete research proposal required of graduate students. Letter grading.

M216. Topics in Asian Archaeology. (4) (Same as Art History M262A.) Lecture, three hours. Designed for graduate students. Topics may include identification of ethnic groups in archaeology, archaeology of religion, archaeological reflections of commerce and trade and their influence on social development, archaeology of language dispersal, cultural contact and nature of cultural "influence." Letter grading.

217. Explanation of Societal Change. (4) Lecture, three hours. Examination of processes of societal evolution, emphasizing usefulness of variety of explanatory models from general systems theory, ecology, anthropology, and other sources. Specific research questions vary with each course offering. May be repeated for credit. S/U or letter grading.

217A. Archaeology of Urbanism. (4) Seminar, three hours. Evaluation of cities as most complex form of human population center, using both archaeological and modern examples. Observations about material culture and space enable assessment of social dynamics as cities are constructed and lived in by variety of different ethnic, economic, ritual, and political groups. Letter grading.

218. Style and Ethnicity. (4) Seminar, three hours. How stylistic variation in material culture informs on and mediates shape, boundaries, and interrelations of ethnic groups. Aimed primarily toward archaeologists and ethnographers, seminar also welcomes students specifically interested in either material culture or style as such. Letter grading.

219. Complex Hunters/Gatherers in Theoretical Perspective. (4) Seminar, three hours. Examination of economic, political, and social foundations of complex hunter/gatherer societies, with focus on theory of emergence of complex cultural organization and recognition of complex middle-range societies in archaeological record. S/U or letter grading.

Biological Anthropology

220. Current Problems in Biological Anthropology. (4) Seminar, three hours. Detailed examination of current research in biological anthropology (specific topics to be announced). Emphasis on nature of hypotheses and their testing in ongoing student and faculty research. May be repeated for credit. S/U or letter grading.

221A-221B. Fossil Evidence for Human Evolution. (4-4) Seminar, four hours. Examination and analysis of fossil evidence for human evolution. S/U or letter grading.

222. Graduate Core Seminar: Biological Anthropology in Review. (6) (Formerly numbered 120G.) Seminar, three hours. Enforced corequisite: attendance, but not enrollment, in course 7 lecture. Required of all graduate anthropology students who need foundational background in biological anthropology. Seminar discussion based on basic evolutionary principles, behavior of nonhuman primates, hominid evolutionary history, and contemporary human variation. Letter grading.

Cultural Anthropology

230P. Practice Theory and Beyond. (4) Seminar, three hours. Requisites: courses 203A, 203B, 203C. Background in classic social theory—Marx, Weber, Durkheim—assumed. Designed for graduate anthropology students. Basic texts in practice theory by Pierre Bourdieu and Anthony Giddens. Series of upgrades on basic practice theory framework, with

greater attention to issues of power and need to historicize anthropological work, and new perspectives on concept of culture. S/U or letter grading.

230Q. Theories of Culture. (4) Lecture, three hours. Exploration of aspects within culture theory: emergence of culture with modes of production, discovery of culture, and "cultural capital" and cultural change. Investigation of production of culture and transformations of meaning within cultural domains of politics, economy, and religion. S/U or letter grading.

231. Asian Americans: Personality and Identity. (4) Lecture, three hours. Designed for graduate students. Effect of class, caste, and race on Asian American personality within framework of anthropological theories. S/U or letter grading.

232V. Current Issues in Ethnography. (4) Seminar, three hours. Designed for graduate students. S/U or letter grading.

233P. Symbolic Anthropology. (4) Seminar, three hours. Requisite: course 133R. Nature of symbolic relations (as distinguished from other referential ones), significance of symbolic systems (in terms of action, cognition, affectivity, contemplation), symbolic and isomorphic logic (as opposed to causal one) are among questions to be selected for analysis and discussion. May be repeated for credit. S/U or letter grading.

233Q. Aesthetic Anthropology. (4) Lecture, three hours. Requisite: course 133R. Selected questions concerning visual aesthetic phenomena in their relationships with sociocultural context examined in depth. May be repeated for credit. S/U or letter grading.

233R. Anthropology and Media Theory. (4) Seminar, three hours. Limited to graduate students. Examination of theoretical assumptions and debates that animate visual anthropology very broadly defined, including issues of interpretation, production, and reception of visual media, which includes ethnographic, documentary, and feature films, as well as television programming. S/U or letter grading.

234. Seminar: Psychocultural Studies and Medical Anthropology. (4) Seminar, three hours. Devoted to present state of research in psychocultural studies. Survey of work in child development and socialization, personality, psychobiology, transcultural psychiatry, deviance, learning, perception, cognition, and psychocultural perspectives on change. S/U or letter grading.

M234P. Transcultural Psychiatry. (4) (Same as Psychiatry M222.) Lecture, three hours. Consideration of psychiatric topics in cross-cultural perspective, such as studies of drug use, deviance, suicide, homicide, behavioral disorders, "culture specific" syndromes, non-Western psychiatries, and questions of "sick" societies. May be repeated for credit. S/U or letter grading.

M234Q. Psychological Anthropology. (4) (Same as Psychiatry M272.) Lecture, three hours. Various psychological issues in anthropology, both theoretical and methodological. Areas of interest include such things as culture and theory, culture and personality, and culture psychiatry. Discussion of questions relating to symbolic and unconsciousness process as they relate to culture. Topics vary from term to term. May be repeated for credit. S/U or letter grading.

234R. Culture, Cognition, and Being in World. (4) Seminar, three hours. Whether and how culture and thought shape each other is historically enduring and controversial topic. Focus on work challenging prevailing implicit acceptance of theoretical separation between study of mind and study of culture. S/U or letter grading.

M234T. Anthropology of Human Body. (2 to 4) (Same as Psychiatry M282.) Seminar, three hours. Exploration of how sociocultural and political dynamics shape perceptions of and understandings about human body, and how, reciprocally, those perceptions and understandings influence social processes. Includes materials from both non-Western and Western societies. Letter grading.

235. Individual in Culture. (4) (Formerly numbered M235.) Seminar, three hours. Designed for graduate students. Letter grading.

M236P. Cross-Cultural Studies of Socialization and Children. (4) (Same as Psychiatry M214.) Lecture, three hours. Selected topics in cross-cultural study of socialization and child training. Methods, ethnographic data, and theoretical orientations. Emphasis on current research. S/U or letter grading.

M238. Native American Revitalization Movements. (4) (Same as History M260C.) Lecture, two hours; discussion, one hour. Examination of revitalization movements among native peoples of North America (north of Mexico). Specific revitalization includes Handsome Lake, 1870 and 1890 Ghost Dances, and Peyote Religion. Letter grading.

239P. Selected Topics in Field Ethnography. (4 to 8) Seminar, three hours. Discussion and practicum in various techniques for collecting and analyzing ethnographic field data. S/U or letter grading.

Linguistic Anthropology

M240. Social Foundations of Language. (4) (Same as Applied Linguistics M206.) Seminar, four hours. Requisite: Linguistics 20. Basic grounding in sociolinguistic theory and methodology. Introduction to current issues in study of tested behavior, including varied ways scholars visualize relation between language and social context. S/U or letter grading.

M241. Topics in Linguistic Anthropology. (4) (Same as Linguistics M246C.) Lecture, three hours. Problems in relations of language, culture, and society. May be repeated for credit. S/U or letter grading.

M242. Ethnography of Communication. (4) (Same as Applied Linguistics M207.) Lecture, three hours. Designed for graduate students. Seminar devoted to examining representative scholarship from fields of sociolinguistics and ethnography of communication. Particular attention to theoretical developments including relationship of ethnography of communication to such disciplines as anthropology, linguistics, and sociology. Topical foci include style and strategy, speech variation, varieties of noncasual speech genres, languages and ethnicity, and nonverbal communication behavior. S/U or letter grading.

243A. Language Ideologies: Political Economy of Language Beliefs and Practices. (4) Lecture, three hours. Language ideological research problematizes fundamental assumptions about speakers' use of language and communicative practices: (1) speakers' awareness of these structures and processes and (2) relationship of this consciousness to speakers' political economic perspectives and to actual communicative conduct. Letter grading.

C243P. Native American Languages and Cultures. (4) Lecture, three hours; seminar, two hours. Preparation: prior coursework in either anthropology, linguistics, or American Indian studies. Introduction and comparative analysis of sociocultural aspects of language use in Native North American Indian speech communities. Specific foci include both micro- and macro-sociolinguistic topics. Micro-sociolinguistic topics are comprised of such issues as multilingualism, cultural differences regarding appropriate communicative behavior and variation within speech communities (e.g., male and female speech, baby talk, ceremonial speech, etc.). Macro-sociolinguistic considerations include language contact and its relationship to language change and language in American Indian education. Concurrently scheduled with course C144. S/U or letter grading.

M243Q. Afro-American Sociolinguistics: Black English. (4) (Same as Afro-American Studies M200D.) Lecture, three hours. Basic information on Black American English, one important minority dialect in U.S. Social implications of minority dialects examined from perspectives of their genesis, maintenance, and social functions. General problems and issues in fields of sociolinguistics examined through case study approach. Students required to conduct research in consultation with instructor and participate in group discussion. S/U or letter grading.

244. Field Methods in Linguistic Anthropology. (4) Seminar, three hours; work with informant, one hour. Requisite: Linguistics 20 or prior experience in linguistic analysis. Practice in eliciting and transcribing

linguistic data from native informants. Initial focus on phonetic transcription and phonological structures; introduction to skills and strategies pertinent to morphological, syntactic, and pragmatic analysis. Practice with native speakers of non-Indo-European languages is important aspect of student participation. S/U or letter grading.

245. Linguistic and Intracultural Variation. (4) Lecture, three hours. Problem of variation as it impinges on disciplines of anthropology and linguistics. Among objectives of course are following: to acknowledge importance of speech variation in anthropological linguistics research, to critically assess broad and representative sample of modern scholarship devoted to study of intra-individual and interindividual variation, and to evaluate utility and potential applicability of recent linguistic models to anthropological linguistics and anthropological theory. Letter grading.

M246A. Grammar and Discourse. (4) (Same as Applied Linguistics M272.) Seminar, four hours. Requisite: Applied Linguistics C201. Survey of grammar and discourse-based approaches to study of language as meaningful form. Topics include grammatical and indexical categories, referential and social indexicality, relation of syntax to semantics and pragmatics, markedness, universals, cultural and cognitive implications of language structure and use. S/U or letter grading.

M246B. Grammar and Discourse Practicum. (4) (Same as Applied Linguistics M273.) Seminar, four hours. Requisite: course M246A. Survey of advanced topics in grammar and discourse, including predicates, arguments and grammatical relations, noun phrase categories, case marking, verbal categories, topic marking devices, registers and speech varieties, reported speech, genre and text structure in discourse. Presentation and analysis of data from range of languages. S/U or letter grading.

M247. Topics in Semantics and Pragmatics. (4) (Same as Applied Linguistics M266.) Seminar, four hours. Requisite: Applied Linguistics C201. Detailed examination of specialized topics in semantics and pragmatics. Topics vary from year to year and may include metaphor, theories of reference and denotation, honorific speech, evidentiality, reported speech, etc. May be repeated for credit with topic change. Letter grading.

M248. Language Socialization. (4) (Same as Applied Linguistics M224.) Seminar, four hours. Requisite: Applied Linguistics M206. Exploration of process of socialization through language and socialization to use language across lifespan, across communities of practice within single society, and across different ethnic and socioeconomic groups. Ways in which verbal interaction between novices and experts is structured linguistically and culturally. S/U or letter grading.

M249A-M249B. Ethnographic Methods in Language, Interaction, and Culture I, II. (4-4) (Same as Applied Linguistics M270A-M270B.) Seminar, three hours. Two-term sequence on ethnographic approaches to recording and analyzing communicative events and practices in their sociocultural context, involving student-initiated fieldwork in community setting. Emphasis on hands-on activities within theoretical frameworks that consider language as social and cultural practice. **M249A.** Requisite: course M242 or Sociology 244A. Devoted to skills related to collecting socially and culturally meaningful data. Letter grading. **M249B.** Requisite: course M249A. Devoted to production of ethnographic analysis, including how to present analysis in form of conference talk and how to develop analysis into grant or dissertation proposal. S/U or letter grading.

M249P. Ethnographic Technologies Laboratory I. (4) (Same as Applied Linguistics M270P.) Laboratory, four hours. Corequisite: course M249A or Applied Linguistics M270A. Hands-on mentorship in entering communities, obtaining informed consent, interviewing, note taking, and videorecording verbal interaction. S/U grading.

M249Q. Ethnographic Technologies Laboratory II. (4) (Same as Applied Linguistics M270Q.) Laboratory, four hours. Corequisite: course M249B or Applied Linguistics M270B. Hands-on mentorship in editing ethnographic video footage, incorporating video frame grabs into transcript and analysis of verbal interaction, writing grant proposals, and assembling conference presentations. S/U grading.

Social Anthropology

250. Selected Topics in Social Anthropology. (4) Seminar, three hours. Intensive examination of current theoretical views and literature. S/U or letter grading.

251P. Cultural Ecology. (4) Lecture, three hours. May be repeated for credit. S/U or letter grading.

252P. Comparative Systems of Social Inequality. (4) Seminar, three hours. Examination in historical and contemporary perspective of particular systems of structured social inequality based on rank, class, caste, ethnicity, gender, age, sexual preference, disability, etc., to develop unified theory of social inequality. Examples from Asian, Pacific, European, African, and American cultures. S/U or letter grading.

252Q. Anthropology of Resistance. (4) Lecture, one hour; discussion, two hours. Preparation: at least one upper division sociocultural anthropology course. Exploration of recent works in anthropology and other disciplines that address practice and resistance, as part of effort to understand processes that have shaped modern and postcolonial society and culture. Letter grading.

M252S. Constructing Race. (4) (Same as Afro-American Studies M252S.) Seminar, three hours. Examination of social construction of race from anthropological perspective in order to refine understanding of ways this category has had and continues to have concrete impact in U.S. Exploration of range of topics, including role discipline of anthropology has played in construction of race, representations of race in popular culture, instability of race revealed in passing and debates about multiracial identity, construction of whiteness, and emergence of identity politics. S/U or letter grading.

253. Economic Anthropology. (4) Lecture, three hours. May be repeated for credit. S/U or letter grading.

254. Kinship. (4) Lecture, three hours. May be repeated for credit. S/U or letter grading.

255. Comparative Political Institutions. (4) Lecture, three hours. May be repeated for credit. S/U or letter grading.

255P. Political Economy. (4) Seminar, three hours. Designed for graduate anthropology students. Introduction to range of approaches anthropologists have used to analyze political economy of capitalism in relation to issues of nation and state building, race, colonialism, and transnationalism. S/U or letter grading.

256. Anthropology of Conflict. (4) Seminar, three hours. Open to undergraduates with consent of instructor. Examination of events and institutions associated with large-scale or ongoing conflict in variety of settings. Particular consideration to roots of violence, violent manifestations and cross-cultural misunderstandings, and nature and content of armed confrontation. S/U or letter grading.

257. Space, Place, and Identity. (4) Seminar, three hours. Recent rise of space/place in humanities and social sciences seems to relate to crisis of modernity in global capitalism. Designed to explore this theoretical theme and to provide useful methodologies to students of anthropology and history who are trying to ground their research in specific places. S/U or letter grading.

258. Work, Gender, and Race. (4) Seminar, three hours; fieldwork, three hours. Limited to graduate students. Impact of expansion of corporate globalization and neoliberalism on U.S. has been to create shift from economy and occupational structure based on manufacturing to one based on services. Shift has been accompanied by increasing polarization of jobs by class, with stratospheric compensation at top and poverty-level wages at bottom, with loss of middle-income jobs, leaving U.S. as society increasingly split

between rich and poor. Examination of these changes and how they affect nature of work and career opportunities of workers in U.S. by gender, race, ethnicity, and immigration status. S/U or letter grading.

Applied Anthropology

260. Urban Anthropology. (4) Seminar, three hours. Requisite: course 167. Intensive anthropological examination of urban setting as human environment. S/U or letter grading.

261Q. Issues in Applied Anthropology. (4) Seminar, three hours. Exploration of selected domestic and international problems from applied anthropological perspective. Consideration of history of applied anthropology, ethics, and careers strategies. S/U or letter grading.

M263P. Gender Systems. (4) (Same as Women's Studies M263P.) Seminar, three hours. Current theoretical developments in understanding gender systems cross-culturally, with emphasis on relationship between systems of gender, economy, ideational systems, and social inequality. Selection of ethnographic cases from recent literature. S/U or letter grading.

M263Q. Advanced Seminar: Medical Anthropology. (2 to 4) (Same as Community Health Sciences M244, Nursing M273, and Psychiatry M273.) Seminar, three hours. Limited to 15 students. Examination of interrelationships between society, culture, ecology, health, and illness. Bases for written critical analysis and class discussion provided through key theoretical works. S/U or letter grading.

M264. Latin America: Traditional Medicine, Shamanism, and Folk Illness. (4) (Same as Community Health Sciences M264 and Latin American Studies M264.) Lecture, three hours. Recommended preparation: Community Health Sciences 132, bilingual English/Spanish skills. Examination of role of traditional medicine and shamanism in Latin America and exploration of how indigenous and mestizo groups diagnose and treat folk illness and Western-defined diseases with variety of health-seeking methods. Examination of art, music, and ritual and case examples of religion and healing practices via lecture, film, and audiotape. Letter grading.

M265. Anthropology of Genetic Knowledge. (2 to 4) (Same as Psychiatry M283.) Seminar, three hours. Exploration of how sociocultural and political dynamics shape our understandings of genetic discoveries and how genetic information is used to create conceptions of self and society. Letter grading.

M266. Health and Culture in Americas. (4) (Same as Community Health Sciences M260 and Latin American Studies M260.) Lecture, three hours. Recommended prerequisite: Community Health Sciences 132. Health issues throughout Americas, especially indigenous/Mestizo Latin American populations. Holistic approach covering politics, economics, history, geography, human rights, maternal/child health, culture. Letter grading.

266N. Narrative and Times of Trouble. (4) Seminar, three hours. Recommended prerequisite: one course from 203A, 203B, 203C, 204, or M242. Exploration of how linguistic and psychological/medical anthropology inform each other in relation to narrative and times of trouble. Topics include narrative sense-making in response to illness and misfortune; phenomenology of time; narrative, healing, and experience; remembering through narrative; narrative subjectivity; and narrative and selves in motion. Letter grading.

CM268P. Perspectives on Health of Native North Americans. (4) (Same as American Indian Studies CM268P.) Seminar, three hours. Recommended preparation: some knowledge of medical anthropology and/or history and contemporary situation of first peoples of North America. Examination of different perspectives related to health and healthcare of Native North Americans (within present boundaries of U.S. and Canada) in relation to cultural, social, political, and economic aspects of changing historical context. Concurrently scheduled with course CM168P. S/U or letter grading.

M269. Contemporary Issues of American Indians. (4) (Same as American Indian Studies M200C and Sociology M275.) Seminar, three hours. Introduction to most important issues facing American Indians as individuals, communities, tribes, and organizations in contemporary world, building on historical background presented in American Indian Studies M200A and cultural and expressive experience of American Indians presented in American Indian Studies M200B. Letter grading.

M269P. Politics of Reproduction. (2 to 4) (Same as Psychiatry M280.) Seminar, three hours. Examination of various ways that power, as it is structured and enacted in everyday activities, shapes human reproductive behavior. Case materials from diverse cultures illuminate how competing interests within households, communities, states, and institutions influence reproductive arrangements in society. Letter grading.

C269R. Repatriation of Native American Human Remains and Cultural Objects. (4) Lecture, two hours; discussion, one hour. Native Americans have recently been successful in obtaining passage of federal and state laws repatriating human remains and cultural objects to them. Examination of this phenomenon. Concurrently scheduled with course C169R. Letter grading.

Regional Cultures

271. Contemporary Problems in Africa. (4) Seminar, three hours. Problematic issues in Africa in light of classical anthropological literature and recent work by anthropologists and other fieldworkers in Africa, with cases from eastern and southern Africa. S/U or letter grading.

M272. Indians of South America. (4) (Same as Latin American Studies M250A.) Lecture, three hours. Survey of literature and research topics related to Indian cultures of South America. May be repeated for credit. S/U or letter grading.

273. Cultures of Middle East. (4) Seminar, three hours. Survey of literature and problems of various cultures of Middle East. S/U or letter grading.

M276. Japan in Age of Empire. (4) (Same as Asian M292 and History M286.) Seminar, three hours. Designed for graduate students. Since late 19th century, Japan expanded its empire into East and Southeast Asia. Coverage of that period and array of anthropological studies conducted in Japan's colonies and occupied areas in this hardly explored area of study of colonialism. S/U or letter grading.

277. Anthropology of China. (4) Seminar, three hours. Designed for graduate students. Survey of selected literature and current developments in field of Chinese social-cultural anthropology. Main topics include family and kinship, interpersonal relations, social differences, local elite and state, rituals and beliefs, popular culture, consumerism, and cultural globalization. S/U or letter grading.

History, Theory, and Method

281. Selected Topics in History of Anthropology. (4) Lecture, three hours. Particular problems in history of anthropology as dictated by interests of students and faculty. May be repeated for credit. S/U or letter grading.

282. Research Design in Cultural Anthropology. (4) Lecture, three hours. Primarily designed for graduate students preparing for fieldwork. Unique position of anthropology among sciences and resulting problems for scientific research design. Review of typical research problems and appropriate methods. Students prepare their own research designs and present them for class discussion. S/U or letter grading.

283. Formal Methods of Data Analysis in Anthropology. (4) Seminar, three hours. Current topics and issues related to formal analysis of data and representation of cultural constructs: formal models of kinship terminologies, structural models of cognitive systems, graph theoretic models of networks, models of decision making, hierarchical information systems, stability in complex adaptive systems. S/U or letter grading.

M284. Qualitative Research Methodology. (4) (Same as Community Health Sciences M216.) Discussion, three hours; laboratory, one hour. Intensive seminar/field course in qualitative research methodology. Emphasis on using qualitative methods and techniques in research and evaluation related to health-care. Letter grading.

284P. Anthropological Methods and Data Analysis. (4) Seminar, three hours. Limited to graduate students. Recommended preparation: research design course. Hands-on approach to qualitative methods used in anthropological research and techniques for analysis of qualitative data. Particular methods depend on and are appropriate to research questions and designs students bring to class. S/U or letter grading.

285. Schools, Domains, and Strategies in World Archaeology. (4) Seminar, three hours. Comparative examination of schools of world archaeology, contrasting their respective databases, research strategies, and relations to allied intellectual disciplines. Archaeologists from all departments are welcome, as are students interested in history or philosophy of science. Letter grading.

285P. Selected Topics in Anthropological/Archaeological Theory. (4) Seminar, three hours. Designed for graduate students. Variable topics course on important theoretical subjects in anthropological archaeology. Topics include early village societies, specialization and cultural complexity, ethnography for archaeologists, power and hierarchy in intermediate societies, materialist/idealist debates, urbanism, and exchange systems. May be repeated for credit. S/U or letter grading.

286P. Selected Topics in Computer Simulation and Modeling. (4) Lecture, three hours. Applications of computer simulations and/or models to specific problem areas of interest to anthropologists. Problem areas rotate with each offering and include cognitive ecological, demographic evolutionary, and other theoretical foci. S/U or letter grading.

287. Poststructural Theories. (4) Seminar, three hours. Designed for graduate students. Examination of development and application of poststructural theories in anthropology by exploring interdisciplinary connections, especially as they concern concept of culture, narrative, ethnographic writing, reflexivity, politics of representation, historicity, and study of self, identity, and body. S/U or letter grading.

287P. Anthropology and Colonialism. (4) Lecture, three hours. Designed for graduate students. Exploration of multifaceted nature of colonialism and its cultural manifestations in variety of geographical areas. Reconsideration of history of anthropology for, as Talal Asad argues, "anthropology emerged as distinctive discipline at beginning of colonial era." S/U or letter grading.

M287Q. Native American Historical Demography. (4) (Same as History M260D.) Lecture, two hours; discussion, one hour. Examination of population history of Native Americans north of Mexico prior to and following contacts with Europeans, Africans, and others, circa 1492. Emphasis on number of American Indians and other Native Americans, their decline following European contact, and their recent resurgence. Letter grading.

292. Making Oral Presentations. (4) Lecture/student presentations, two hours; discussion, one hour. Designed for graduate students. How to organize and present seminar reports, papers at scholarly conferences, and lectures to professional audiences. Opportunity for students to develop their speaking skills through actual practice in workshop atmosphere of mutual support and constructive criticism. S/U grading.

M293. Culture, Brain, and Development Forum. (1) (Formerly numbered 293.) (Same as Applied Linguistics M232, Education M285, Neuroscience M293, and Psychology M248.) Seminar, 90 minutes every other week. Interdisciplinary seminar series to provide students with exposure to current research in understanding complex relationship between culture, brain, and development. S/U grading.

M293S. Culture, Brain, and Development. (4) (Same as Applied Linguistics M233, Education M286, and Psychology M247.) Seminar, three hours. Designed for graduate students. Integration of knowledge across different disciplines to understand interrelations of culture, brain, and development, where development includes both human ontogeny and human phylogeny. S/U or letter grading.

294. Human Complex Systems Forum. (1) Seminar, 90 minutes every other week. Interdisciplinary seminar series to provide students with exposure to current research in understanding nature of human societies from complexity and multiagent perspective. May be repeated for credit. S/U grading.

295. Culture of Intersubjectivity. (4) Seminar, three hours. Enforced requisites: courses 203A, 203B, and 203C, or 204. Introduction to notion of intersubjectivity and its relevance for anthropological research. Exploration of problem of intersubjectivity in its existential, semiotic, and linguistic dimensions. Key topics include intentionality, consciousness, empathy, temporality, agency, experience, and embodiment. S/U or letter grading.

M295A-M295B-M295C. Relationship Science Forums. (2-2-2). (Same as Education M298A-M298B-M298C, Psychology M237A-M237B-M237C, and Sociology M269A-M269B-M269C.) Seminar, 90 minutes. Limited to graduate students. Current research and theory about personal relationships presented by members of seminar, faculty members, and guest speakers from diverse fields, including anthropology, education, psychology, and sociology. May be repeated for credit. S/U grading.

M295S. Interdisciplinary Relationship Science. (4) (Same as Education M297, Psychology M236, and Sociology M270.) Lecture, three hours. Limited to graduate students. Diverse approaches to relationship science in fields of anthropology, education, psychology, and sociology. Focus on theme of understanding biological, behavioral, and cultural aspects of relationships through diverse theoretical and methodological approaches. Use of broad definition of interpersonal relationships, including relationships such as parent-child, teacher-student, sibling, peer, kin, romantic relationships, marriages, and friendships. S/U or letter grading.

297. Selected Topics in Anthropology. (2 to 4) Seminar, three hours. Designed for graduate students. Study of selected topics of anthropological interest. Consult *Schedule of Classes* for topics and instructors. May be repeated for credit. S/U or letter grading.

Special Studies

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Teaching Anthropology. (2 to 4) Seminar/workshop, three hours. Designed for graduate students. Required of all new teaching assistants. Workshop/seminar in teaching techniques, including evaluation of each student's own performance as teaching assistant. Four-day workshop precedes beginning of term, followed by 10-week seminar during term designed to deal with problems and techniques of teaching anthropology. Unit credit may be applied toward full-time equivalence but not toward nine-course requirement for M.A. S/U grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. Individual Studies for Graduate Students. (2 to 8) Tutorial, to be arranged. Directed individual studies. S/U or letter grading.

597. Preparation for Ph.D. Qualifying Examinations. (2 to 12) Tutorial, to be arranged. S/U grading.

598. Research for and Preparation of M.A. Thesis. (2 to 8) Tutorial, to be arranged. Preparation of research data and writing of M.A. thesis. S/U grading.

599. Research for Ph.D. Dissertation. (2 to 12) Tutorial, to be arranged. Ph.D. dissertation research or writing. Students must have completed qualifying examinations and ordinarily take no other coursework. S/U grading.

APPLIED LINGUISTICS

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Earl J. Rand, Ph.D.

Assistant Professor

Katrina D. Thompson, Ph.D.

Lecturers

Janet M. Goodwin, M.A.
Linda Jensen, M.A.

Adjunct Assistant Professors

Jisoo Kim, Ph.D.
Annelie M. Rugg, Ph.D.

Scope and Objectives

UCLA is a dynamic place to study applied linguistics, a discipline that investigates language with relevance to issues in the everyday world. Situated in discursive and interactional contexts, language is essential to all aspects of life from personal to social. Interdisciplinary in nature, applied linguistics sheds new light on the nature of language and language use. Faculty members, including affiliated members in the Anthropology, Asian Languages and Cultures, Chicana and Chicano Studies, Education, Linguistics, Psychology, and Sociology Departments whose participation reinforces the interdisciplinary nature of applied linguistics re-

search, represent a wide range of expertise and experience in language-related research.

The Department of Applied Linguistics is at the forefront of research in the field of applied linguistics and offers programs leading to the Bachelor of Arts, Master of Arts, and Ph.D. degrees, as well as two undergraduate minors and a graduate certificate program.

Undergraduate Study

African Languages B.A.

Preparation for the Major

Required: Linguistics 20, nine courses from African Languages 1A through 42C and 197 (six in one language and three in another).

Transfer Students

Transfer applicants to the African Languages major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: one introduction to linguistics course and two years of one language and one year of one other language.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: A minimum of 13 upper division courses, including three courses in an African language; African Languages M187, Linguistics 103; two courses from Film and Television 106C, French 121, Theater 102E, World Arts and Cultures 134, or one or more special 4-unit African Languages 197 tutorials focusing on literature in an African language; three courses from English 114, Ethnomusicology 136A, C136B, History 121A, 121B, 121C, 122A, 122B, 123A, 123B, 124A, 124B, Linguistics 110, 120A, 120B or 127, C140, M146, 170, Political Science 151A, 151B, 151C. Linguistics 165A or 165B (or 200A or 200B with a grade of A in 120A or 120B respectively and consent of instructor) and completion of the sixth term in one of the following non-African languages are strongly recommended: Afrikaans, Arabic, Dutch, French, German, Portuguese.

Applied Linguistics B.A.

The Applied Linguistics major involves both theory-research and practice. On the theory-research side, it provides students with the opportunity to investigate the links between language, culture, social organization, and learning. On the practical side, with focus on service learning, it engages students in the community, schools, and workplaces of our geographic setting. The major encourages students to reflect on their lives with regard to language use and to bring to bear the academic resources of their education on these reflections.

Students must have an overall grade-point average of 2.0 or better to enter the major. Each preparation course must be passed with an average grade of C or better and must be com-

pleted before enrolling in courses for the major. A 2.0 grade-point average in courses for the major is required.

Preparation for the Major

Required: Applied Linguistics 10 or 10W; two courses from 20, 30 (or 30W), 40 (or 40W), Anthropology 33, and Psychology 10; Linguistics 20; and completion of the equivalent of the sixth term of one foreign language.

Students who complete an advanced upper division language course are considered to have completed the equivalent of whatever courses are requisite to that advanced language course (e.g., if students complete German 152, they have automatically satisfied the requirement of the sixth term of work in German).

Transfer Students

Transfer applicants to the Applied Linguistics major with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of one foreign language, one introduction to linguistics course, one introduction to psychology course, one introduction to linguistic anthropology course, and one introduction to sociology course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Ten upper division courses as follows: Applied Linguistics C153, C155, C157, M161W, Linguistics 103, and five elective courses, two of which must be service learning courses and one of which must be a capstone course, selected from Anthropology M140, C144, 147, Applied Linguistics 101 (or 101W), 102W, C111, 112SL, 113SL, C114, C115A, C116, 117SL, C118A, C118B, 121SL, CM127, C140, C141, M165SL, M172SL, C175, 195, 197, 198, 199, Japanese M120, Korean CM120, Linguistics 114, M115, 130, C140, Sociology M124A, M124B, CM125, 191Q.

Applied Linguistics 121SL, M165SL, M172SL, and C175 serve as capstone courses. Courses designated as both service learning and capstone courses may be applied toward both the service learning and capstone requirements. Service learning and capstone courses may not be taken during the freshman or sophomore year. No more than two courses from 195, 197, 198, and 199 may be applied toward the major.

Honors Program

Honors in applied linguistics are awarded at graduation to those students who have completed all preparation courses and requirements for the major with an overall grade-point average of 3.5 or better and who have received a grade of A in Applied Linguistics 198 or 199.

Language, Interaction, and Culture Minor

The Language, Interaction, and Culture minor is designed to train students in the naturalistic study of discourse in everyday interaction.

To enter the minor, students must have an overall grade-point average of 2.0 or better, have completed 80 quarter units, and file a petition with the minor adviser, 3300A Rolfe Hall, (310) 825-4631.

Required Lower Division Courses (8 units): Two courses from the following, with each course from a different group: group 1—Anthropology 33 or 34; group 2—Sociology 3 or 24; group 3—Linguistics 1 or 2 or 20.

Required Upper Division Courses (28 units): Applied Linguistics M194 and six courses from the following, with at least one course from each group: group 1—Anthropology M140, 141, 142A, 143, C144, M145, 146; group 2—Sociology M124A, M124B, CM125, 126, M176; group 3—Applied Linguistics 100, C116, 121SL, M125, M161W, 170, Chicana and Chicano Studies 160, Japanese M120, CM122, Linguistics 114, 170.

No more than two upper division elective courses may be applied toward both this minor and a major or minor in another department or program. Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Language Teaching Minor

The Language Teaching minor provides students with an overview of current pedagogical theories and practices in language teaching; the experience of observing the language acquisition process both in and out of the classroom; a supervised practicum experience in a variety of language classroom settings; and an opportunity to reflect on the interaction of theory and practice in language teaching.

To enter the minor, students must have an overall grade-point average of 2.0 or better, have completed 80 quarter units, and file a petition with the undergraduate adviser.

Required Lower Division Course (5 units): Linguistics 20 with a grade of C or better.

Required Upper Division Courses (32 units): Eight courses as follows: one from Applied Linguistics 101, 101W, or 102W; C110, C116, C118B; and a minimum of four elective courses from C111, C112, C113, C114, C115A, C117, C118A, C153, C155, C157, M161W, M165SL, English 121, Indo-European Studies M150 (or Linguistics M150), Linguistics 130, C140, 175.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major or minor requirements in another department or program, and at least 16 units applied toward the minor must be taken in residence at UCLA. Transfer credit for any of the above is subject to departmental ap-

proval; consult the minor adviser before enrolling in any courses for the minor.

Each minor course must be taken for a letter grade, and students must have a minimum grade of C (2.0) in each and an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

English as a Second Language

English as a Second Language (ESL) courses are only for UCLA students whose native language is not English. Placement in these courses is established on the basis of the UCLA English as a Second Language Placement Examination (ESLPE) or the Analytical Writing Placement Examination (AWPE).

All entering UCLA students whose first language is not English and who have not otherwise satisfied the English as a Second Language (ESL) requirement may be required to complete the ESL requirement by taking one or more ESL courses.

The following students whose native language is not English are exempt from the ESL requirement: (1) first-year undergraduate students who have satisfied the Entry-Level Writing requirement based on their performance on the AWPE (see Entry-Level Writing in the Undergraduate Study section of this catalog), (2) undergraduate transfer students exempted on the basis of their transcript evaluation (see the Undergraduate Study section of this catalog), and (3) graduate students who hold a bachelor's or higher degree from a university in a country where the official language is English and in which English is the spoken tongue and the medium of instruction (see International Applicants in the Graduate Study section of this catalog).

First-year undergraduate students who have not otherwise satisfied the Entry-Level Writing requirement and who have not taken the AWPE by the time they enter UCLA must take it in their first term at UCLA. Results of the AWPE are reviewed to determine whether students should complete the ESL requirement, prior to satisfying the Entry-Level Writing requirement, in order to demonstrate sufficient command of English. If held for the ESL requirement, students must complete the requirement by taking the designated ESL courses.

All other undergraduate transfer and graduate students must sit for the ESLPE. Neither the Test of English as a Foreign Language (TOEFL) nor any other English proficiency test can be submitted or accepted in lieu of the ESLPE. Failure to sit for the ESLPE results in a hold on student records.

Undergraduate students may take the ESLPE once only. Graduate students who believe that their initial ESLPE score is not reflective of their English language proficiency due to having recently arrived in the U.S. may sit for the examination a second time in the subsequent term

only (retaking the examination in the same term is not counted as a valid result). In cases where students retake the examination in their second term of study, the most recent examination score is held to be valid. Unauthorized retakes result in an invalid examination score.

Results of the ESLPE are used to determine placement into the required sequence of ESL courses or exemption from the ESL requirement. If held for the ESL requirement, students must begin taking courses during their first term in residence at UCLA and must complete the courses in sequence. The required sequence for undergraduate students is English as a Second Language 33B, 33C, and 35; each course must be completed with a grade of C or better (C– or a Passed grade is not acceptable). The required sequence for graduate students is English as a Second Language 33B and 33G; each course must be completed with a grade of C or better if taken for a letter grade, or S if taken on an S/U basis. If students do not achieve a minimum score on the placement examination, they may be required to spend a term studying elementary English exclusively, through UCLA Extension, before retaking the ESLPE and continuing through the appropriate sequence of courses at UCLA.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Applied Linguistics offers Master of Arts (M.A.), Candidate in Philosophy (C.Phil.), and Doctor of Philosophy (Ph.D.) degrees in Applied Linguistics and a Master of Arts (M.A.) degree in Teaching English as a Second Language. A Teaching English as a Second/Foreign Language Certificate is also offered.

African Languages

Lower Division Courses

1A-1B-1C. Elementary Swahili. (4-4-4) Lecture, five hours. Course 1A is enforced requisite to 1B, which is enforced requisite to 1C. Major language of East Africa, particularly Tanzania. P/NP or letter grading.

2A-2B-2C. Intermediate Swahili. (4-4-4) Lecture, four hours. Enforced requisite: course 1C. Course 2A is enforced requisite to 2B, which is enforced requisite to 2C. P/NP or letter grading.

4. Conversational Swahili. (1) Seminar, one hour. Enforced requisites: courses 1A, 1B. Practice in Swahili conversation on topics of general interest, including east African current events, for Swahili students at intermediate level. May be repeated for credit. P/NP grading.

5. Building Careers through Knowledge of Africa. (1) Lecture, one hour. Guest lecturers, representing diverse careers such as academia, business, arts, nonprofits, and religious work, speak about study of

Africa and careers they have pursued after studying about Africa in college and/or graduate school. P/NP grading.

7A-7B-7C. Elementary Zulu. (4-4-4) Lecture, five hours. Course 7A is enforced requisite to 7B, which is enforced requisite to 7C. Most widely spoken of the Nguni languages of South Africa, mutually intelligible with other members of this group. P/NP or letter grading.

8A-8B-8C. Intermediate Zulu. (4-4-4) Lecture, four hours. Enforced requisite: course 7C. Course 8A is enforced requisite to 8B, which is enforced requisite to 8C. P/NP or letter grading.

11A-11B-11C. Elementary Yoruba. (4-4-4) Lecture, five hours. Course 11A is enforced requisite to 11B, which is enforced requisite to 11C. Major language of western Nigeria. P/NP or letter grading.

12A-12B-12C. Intermediate Yoruba. (4-4-4) Lecture, four hours. Enforced requisite: course 11C. Course 12A is enforced requisite to 12B, which is enforced requisite to 12C. P/NP or letter grading.

15. Intensive Elementary Swahili. (12) Lecture, 20 hours (eight weeks). Intensive instruction (equivalent to courses 1A, 1B, 1C) in Swahili, major language of East Africa, particularly Tanzania. Letter grading.

16. Intensive Intermediate Swahili. (12) Lecture, 20 hours (eight weeks). Enforced requisite: course 1C or 15. Intensive instruction (equivalent to courses 2A, 2B, 2C) in Swahili, major language of East Africa, particularly Tanzania. Letter grading.

17. Intensive Elementary Zulu. (12) Lecture, 20 hours (eight weeks). Intensive instruction (equivalent to courses 7A, 7B, 7C) in Zulu, most widely spoken of the Nguni languages of South Africa, mutually intelligible with other members of this group. Letter grading.

18. Intensive Intermediate Zulu. (12) Lecture, 20 hours (eight weeks). Enforced requisite: course 7C or 17. Intensive instruction (equivalent to courses 8A, 8B, 8C) in Zulu, most widely spoken of the Nguni languages of South Africa, mutually intelligible with other members of this group. Letter grading.

25. Intensive Elementary Yoruba. (12) Lecture, 20 hours (eight weeks). Intensive instruction (equivalent to courses 11A, 11B, 11C) in Yoruba, major language of western Nigeria. Letter grading.

26. Intensive Intermediate Yoruba. (12) Lecture, 20 hours (eight weeks). Enforced requisite: course 11C or 25. Intensive instruction (equivalent to courses 12A, 12B, 12C) in Yoruba, major language of western Nigeria. Letter grading.

27. Intensive Elementary Xhosa. (12) Seminar, 20 hours. Basic communication skills and intensive instruction in Xhosa, with emphasis on listening and speaking. Use of various instructional media, including textbook, CD-ROMS, interactive Web-based materials, and videos. P/NP or letter grading.

29. Intensive Elementary Igbo. (12) Seminar, 20 hours. Basic communication skills and intensive instruction in Igbo, with emphasis on listening and speaking. Use of various instructional media, including textbook and audio/video materials. P/NP or letter grading.

31A-31B-31C. Elementary Bambara. (4-4-4) Lecture, five hours. Course 31A is enforced requisite to 31B, which is enforced requisite to 31C. Major language of Mali, also widely spoken in adjacent parts of West Africa; includes Maninka (Malinke), Dyula, and other mutually intelligible dialects. P/NP or letter grading.

32A-32B-32C. Intermediate Bambara. (4-4-4) Lecture, four hours. Enforced requisite: course 31C. Course 32A is enforced requisite to 32B, which is enforced requisite to 32C. P/NP or letter grading.

35. Intensive Elementary Bambara. (12) Lecture, 20 hours (eight weeks). Intensive instruction (equivalent to courses 31A, 31B, 31C) in Bambara, major language of Mali and contiguous areas. Letter grading.

36. Intensive Intermediate Bambara. (12) Lecture, 20 hours (eight weeks). Enforced requisite: course 31C or 35. Intensive instruction (equivalent to courses 32A, 32B, 32C) in Bambara, major language of Mali and contiguous areas. Letter grading.

41A-41B-41C. Elementary Hausa. (4-4-4) Lecture, five hours. Course 41A is enforced requisite to 41B, which is enforced requisite to 41C. Major language of northern Nigeria and adjacent areas. P/NP or letter grading.

42A-42B-42C. Intermediate Hausa. (4-4-4) Lecture, four hours. Enforced requisite: course 41C. Course 42A is enforced requisite to 42B, which is enforced requisite to 42C. P/NP or letter grading.

45. Intensive Elementary Hausa. (12) Lecture, 20 hours (eight weeks). Intensive instruction (equivalent to courses 41A, 41B, 41C) in Hausa, major language of northern Nigeria and adjacent areas. Letter grading.

46. Intensive Intermediate Hausa. (12) Lecture, 20 hours (eight weeks). Enforced requisite: course 41C or 45. Intensive instruction (equivalent to courses 42A, 42B, 42C) in Hausa, major language of northern Nigeria and adjacent areas. Letter grading.

51A-51B-51C. Elementary Amharic. (4-4-4) Lecture, five hours (15 hours for intensive course). Course 51A is enforced requisite to 51B, which is enforced requisite to 51C. Major language of Ethiopia. P/NP (undergraduates), S/U (graduates), or letter grading.

52A-52B-52C. Intermediate Amharic. (4-4-4) Lecture, five hours (15 hours for intensive course). Enforced requisite: course 51C. Course 52A is enforced requisite to 52B, which is enforced requisite to 52C. P/NP (undergraduates), S/U (graduates), or letter grading.

55. Intensive Elementary Tigrinya. (12) Lecture, 20 hours. Intensive instruction in Tigrinya, major language of Eritrea and Tigray, province of Ethiopia. Letter grading.

56. Intensive Elementary Amharic. (12) Lecture, 17 hours (eight weeks). Intensive instruction (equivalent to courses 51A, 51B, 51C) in Amharic, major language of Ethiopia. P/NP or letter grading.

61A-61B-61C. Elementary Wolof. (4-4-4) Lecture, five hours. Course 61A is enforced requisite to 61B, which is enforced requisite to 61C. Major language of Senegambia. P/NP or letter grading.

62A-62B-62C. Intermediate Wolof. (4-4-4) Lecture, four hours. Enforced requisite: course 61C. Course 62A is enforced requisite to 62B, which is enforced requisite to 62C. P/NP or letter grading.

75. Intensive Elementary Chichewa. (12) Lecture, 20 hours. Intensive instruction in Chichewa (ChiNyanja), major language of Malawi and adjacent areas of Zimbabwe, Mozambique, Zambia, and Tanzania. Letter grading.

85. Intensive Elementary Setswana. (12) Lecture, 20 hours. Intensive instruction in Setswana, primary language of Botswana and adjacent areas of South Africa. Letter grading.

96. Crash Course in Swahili for Volunteers. (2) Seminar, two hours. Preparation for students about to travel to East Africa for volunteer or other work experience. Students learn to interact with speakers of Swahili in most predictable contexts by asking and answering questions. Reading of simple texts and understanding of short oral instructions and descriptions in standard Swahili. P/NP or letter grading.

97. Variable Topics in Elementary and Intermediate Studies in African Languages. (1 to 6) Seminar, five hours. Instruction at elementary or intermediate level, based on needs of students, in any language for which appropriate facilities are available. Those taught in past included Akan, Efik, Ewe, Fula, Igbo, Lingala, Luganda, and Xhosa. May be repeated for credit. Letter grading.

Upper Division Courses

103A-103B-103C. Advanced Swahili. (4-4-4) Lecture, four hours. Requisite: course 2C. Course 103A is requisite to 103B, which is requisite to 103C. Readings in Swahili literature and the contemporary press. Discussions mainly in Swahili. P/NP or letter grading.

109A-109B-109C. Advanced Zulu. (4-4-4) Lecture, five hours. Requisite: course 8C. Course 109A is requisite to 109B, which is requisite to 109C. Readings in Zulu literature and the contemporary press. Discussions mainly in Zulu. P/NP or letter grading.

123A-123B-123C. Advanced Yoruba. (4-4-4) Lecture, four hours. Requisite: course 12C. Course 123A is requisite to 123B, which is requisite to 123C. Readings in Yoruba literature and the contemporary press. Discussions mainly in Yoruba. P/NP or letter grading.

133A-133B-133C. Advanced Bambara. (4-4-4) Lecture, four hours. Requisite: course 32C. Course 133A is requisite to 133B, which is requisite to 133C. Readings in Bambara literature and the contemporary press. Discussions mainly in Bambara. P/NP or letter grading.

143A-143B-143C. Advanced Hausa. (4-4-4) Lecture, four hours. Requisite: course 42C. Course 143A is requisite to 143B, which is requisite to 143C. Readings in Hausa literature and the contemporary press. Discussions mainly in Hausa. P/NP or letter grading.

150A-150B. African Literature in English Translation. (4-4) Lecture, four hours. Narrative and didactic prose and poetry of sub-Saharan Africa and written prose and poetry of South Africa. P/NP or letter grading.

153A-153B-153C. Advanced Amharic. (4-4-4) Lecture, five hours (15 hours for intensive course). Requisite: course 52C. Course 153A is requisite to 153B, which is requisite to 153C. Readings in Amharic literature and the contemporary press. Discussions mainly in Amharic. P/NP (undergraduates), S/U (graduates), or letter grading.

170. South African Literatures and Cinema. (4) Lecture/screenings, six hours. South African apartheid and postapartheid written literatures and cinema, including lectures and discussion of written texts and films in English. P/NP or letter grading.

171. Language in South Africa: Histories, Cultures, Politics. (4) Lecture, three hours. Recommended requisite: course 7A. Knowledge of African languages not required. Introduction to South Africa centered around language, using variety of disciplinary perspectives as lenses to examine variegated landscape of South Africa's languages. What does South Africa's multilingual past and present tell us about culture and politics? To what extent does language inform volatile debates about race, sexuality, economics, and healthcare? Why does language of those debates matter? In keeping with multilingual dynamics of South African society, course is based on multiple forms of information and requires multiple levels of interaction. P/NP or letter grading.

172. Languages and Cultures of Nigeria. (4) Lecture, two hours; discussion, one hour. Recommended requisite: course 11A, 25, 29, or 41A. Knowledge of African languages not required. Introduction to Nigeria centered around language. How does language shape ethnic identities in Nigeria (one of Africa's most multilingual nations) and Nigerian diaspora? Analysis of historical, cultural, political, and linguistic circumstances to allow students to assess different arenas of language interaction such as contemporary politics, religion, literature, and performing arts and to gain in-depth understanding of Nigeria's diversity of languages and cultures, with focus on four major languages: Hausa, Igbo, Yoruba, and Nigerian Pidgin English. P/NP or letter grading.

173. Preparing to Study Abroad in Africa. (4) Lecture, three hours; discussion, one hour. Recommended preparation: one year of one African language. Development of skills, perspectives, and practical knowledge about living and studying abroad, with particular reference to Africa and greater emphasis on those African countries with existing Education Abroad and Summer Travel Study relationships with UCLA (e.g., Ghana, Egypt, Senegal, South Africa, and Tanzania). Exploration of other countries that may be of special interest to students. Readings, discussions, and written work on personal and national/cultural values and their role in how one views other cultures, culture shock and stages of cross-cultural adjustment, language-learning strategies, verbal and nonverbal pat-

terns of communication, and African academic traditions, programs, and campus cultures. P/NP or letter grading.

M187. Survey of African Languages. (4) (Same as Linguistics M115.) Lecture, four hours. Requisite: Linguistics 20. Introduction to languages of Africa, their distribution and classification, and their phonological and grammatical structures; elementary practice in several languages. P/NP or letter grading.

197. Individual Studies in African Languages. (1 to 6) Tutorial, four hours. Limited to juniors/seniors. Individual intensive instruction at advanced level or supervised research, based on needs of individual students, in any language or group of languages for which appropriate facilities are available. Scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

202A-202B-202C. Comparative Bantu. (4-4-4) Lecture, four hours. Requisites: Linguistics 110, 165A, 165B. Recommended: three quarter courses in one Bantu language selected from 1A through 8C, 197. Investigation of relationships among Bantu languages; extent and external relationships of Bantu. S/U or letter grading.

596. Directed Studies. (1 to 8) Tutorial, to be arranged. Directed individual study or research. Four units may be applied toward M.A. course requirements. May be repeated for credit. S/U grading.

Applied Linguistics

Lower Division Courses

10. Language in Action: Perspectives from Applied Linguistics. (5) Lecture, three hours; discussion, two hours. Not open for credit to students with credit for course 10W. Introduction to rich variety of topics, approaches, research, and resources in interdisciplinary field of applied linguistics as it is practiced at UCLA. Series of presentations by various faculty members whose work is in those areas. Introduction to various ways language works in real life and how this can be described and studied in systematic ways; designed to teach students to write effectively. Letter grading.

10W. Language in Action: Perspectives from Applied Linguistics. (5) Lecture, three hours; discussion, two hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 10. Introduction to rich variety of topics, approaches, research, and resources in interdisciplinary field of applied linguistics as it is practiced at UCLA. Series of presentations by various faculty members whose work is in those areas. Introduction to various ways language works in real life and how this can be described and studied in systematic ways; designed to teach students to write effectively. Satisfies Writing II requirement. Letter grading.

20. Ethical Issues in Language Assessment: Using Language Tests in Education and Society. (5) Lecture, four hours; discussion, one hour. Uses of language tests in education and society. Language tests have become pervasive part of education systems and society, being used for wide variety of purposes such as identifying English language learners in schools, making admissions decisions to universities, placing students into language programs, screening potential citizens, and selecting employees. But how useful are language tests for making these high-stakes decisions? By what standards can usefulness of these tests and fairness of decisions that are made be evaluated? What are consequences, both beneficial and harmful, of using language tests for these purposes? Reading and discussion of selected articles that address these questions. Letter grading.

30. Language and Social Interaction. (5) Lecture, four hours. Not open for credit to students with credit for course 30W. Exploration of range of topics related to study of language and society, particularly how language affects social lives and how social organization affects use of language. Topics include different approaches to study of language in society (theories and research methodologies), issues regarding language and identity (such as socioeconomic status, race, gender, and situational identity), and issues concerning language and culture (such as cross-cultural misunderstanding and language socialization). Empirical and critical analysis of set of language data to be carried out as part of course project. Letter grading.

30W. Language and Social Interaction. (5) Lecture, three hours; discussion, two hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 30. Exploration of range of topics related to study of language and social interaction in both mundane and professional settings, particularly how language affects social lives and how social organization affects use of language. Topics include different approaches to study of language in social interaction (theories and research methodologies), issues regarding language and social identity (such as socioeconomic status, race, gender, and situational identity), and issues concerning language and culture (such as cross-cultural misunderstanding and language socialization). Satisfies Writing II requirement. Letter grading.

40. Language and Gender: Introduction to Gender Differences and Stereotypes. (5) Lecture, four hours; discussion, one hour. Not open for credit to students with credit for course 40W or former course M40 or M40W. Introduction to language from sociological perspective of gender. Use of research and examples in English and other languages to explore nature of male and female "genderlects" and gendered language, as reflected in lexicon, language behavior, phonetics and intonation, and language acquisition and linguistic change. Fieldwork to be carried out in language of student choice. Letter grading.

40W. Language and Gender: Introduction to Gender and Stereotypes. (5) (Formerly numbered M40W.) Lecture, four hours; discussion, two hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 40 or former course M40 or M40W. Prior knowledge of foreign languages not required. Introduction to language from sociological perspective of gender. Use of research and examples in English and other languages to explore nature of male and female "genderlects" and gendered language, as reflected in lexicon, language behavior, phonetics and intonation, and language acquisition and linguistic change. Satisfies Writing II requirement. Letter grading.

80. Language in Globalizing World: Second Language Interaction in Everyday Life and Academia. (4) Lecture, four hours. Not open for credit to students with credit for course 80W. Introduction to language and social interaction, with specific emphasis on second language communication. Second or foreign language is considered highly important worldwide in personal, intellectual, and professional life. As important domain of research, second language interaction is widely studied by applied linguists, conversation analysts, and linguistic anthropologists with varying interests. Study of various interactional phenomena observed in second language communication. Discussion of relevant linguistic concepts such as turn-taking and overlap as resources for analyzing second language interaction. Examination of how culture, ethnicity, and ownership of language are made relevant in everyday life by looking at second language interaction on various social occasions. Discussion of second language interaction in various pedagogical settings. P/NP or letter grading.

80W. Language in Globalizing World: Second Language Interaction in Everyday Life and Academia. (5) Lecture, four hours; discussion, one hour. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to

students with credit for course 80. Introduction to language and social interaction, with specific emphasis on second language communication. Second or foreign language is considered highly important worldwide in personal, intellectual, and professional life. As important domain of research, second language interaction is widely studied by applied linguists, conversation analysts, and linguistic anthropologists with varying interests. Study of various interactional phenomena observed in second language communication. Discussion of relevant linguistic concepts such as turn-taking and repair as resources for analyzing second language interaction. Examination of how culture, ethnicity, and ownership of language are made relevant in everyday life. Discussion of second language interaction in wide range of pedagogical settings and examination of heritage language interaction when relevant. Letter grading.

88GE. Sophomore Seminar: Special Topics in Applied Linguistics. (5) Seminar, three hours. Enforced requisite: course 40 or 40W. Designed for sophomores/juniors. Exploration of aspects of lecture topic in critical areas of interest through readings, discussions, research, and fieldwork. P/NP or letter grading.

Upper Division Courses

100. Discourse and Society. (4) Lecture, four hours; discussion, two hours. Important contemporary perspectives for study of language in its social and cultural matrix. Topics include conversational organization, narrative, repair and grammatical organization, language in cultural settings, language socialization, and language impairment and institutional discourse. Focus on analysis of audio and video recordings of talk in variety of natural settings. P/NP or letter grading.

101. Introduction to Language Learning and Language Teaching. (5) Lecture, four hours. Not open for credit to students with credit for course 101W. Exploration of skills and conditions involved in successful second and foreign language learning; application of this knowledge in development of framework for teaching second and foreign languages. Letter grading.

101W. Introduction to Language Learning and Language Teaching. (5) Lecture, four hours; discussion, one hour. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 101. Exploration of skills and conditions involved in successful second and foreign language learning; application of this knowledge in development of framework for teaching second and foreign languages. Satisfies Writing II requirement. Letter grading.

102W. Nature of Learning. (5) Lecture, four hours; discussion, one hour. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Exploration of learning via examination of second language acquisition. All normal children acquire language of their family and community (i.e., first language acquisition is ubiquitous). Success in second language acquisition is radically variable, and many learners, in spite of substantial opportunity and ability, achieve proficiencies that fall far below that of native speakers. Examination of interaction of emotion and cognition and nature of aptitude and motivation in learning. Primary vehicle for investigation to be autobiographies of second language learners. Satisfies Writing II requirement. Letter grading.

C110. Methodology for Second/Foreign/Heritage Language Education. (4) Lecture, four hours. Requisite: Linguistics 20. Survey of theory and practice in teaching second/foreign/heritage languages, including (1) past and present methods used to teach second/foreign/heritage languages, (2) current theory and practice underlying skills-based instruction and integrated approaches, (3) factors that affect second language acquisition and learning. Development of knowledge base in and rational basis for design, development, implementation, and evaluation of second/foreign/heritage language programs. Concurrently scheduled with course C210. P/NP or letter grading.

C111. Writing for Second/Foreign/Heritage Language Education. (4) Lecture, four hours. Requisite: course 101W or C110. Survey of theoretical and methodological issues related to second/heritage language written discourse and composition for second/heritage language writers, including critical examination of classroom research and overview of issues in evaluating and responding to written text. Concurrently scheduled with course C211. P/NP or letter grading.

C112. Reading for Second/Foreign/Heritage Language Education. (4) Lecture, four hours. Requisite: course 101W or C110. Survey of theoretical and methodological issues related to second/foreign/heritage language reading, including critical examination of reading research and evaluation of research paradigms and classroom materials. Concurrently scheduled with course C212. P/NP or letter grading.

112SL. Teaching Reading in Second/Foreign/Heritage Language through Service Learning. (5) Lecture, four hours; fieldwork, four hours. Designed for second/foreign/heritage language teachers and teachers-in-training, with focus on important theoretical and methodological issues related to teaching of second language reading. Survey of current research and theory, as well as evaluation of current reading textbooks and development of classroom materials. Students tutor foreign language and ESL students at selected service learning community partner sites and actively reflect on, analyze, and discuss ways in which they used skills and ideas presented in class and readings. They share observations with and make suggestions to one another regarding their service with goal of relating their experiences to course materials and ensuring mutually beneficial relationship between academic and community partners. P/NP or letter grading.

C113. Phonetics for Second/Foreign/Heritage Language Education. (4) Lecture, four hours. Requisite: Linguistics 20. Examination of phonological structure of contemporary American English, with emphasis on appropriate teaching techniques in ESL/EFL/heritage settings, including critical examination of classroom materials and overview of methods of evaluating student pronunciation. Concurrently scheduled with course C213. P/NP or letter grading.

113SL. Phonetics for Language Education and Service Learning. (5) Lecture, four hours; fieldwork, four hours. Designed to give overview of phonetic features of North American English (NAE) that relate to teaching of English as a second/foreign/heritage language. Examination of (1) segmental and suprasegmental elements of NAE, (2) how English sound system contrasts with sound systems of other languages, (3) activities for teaching pronunciation, and (4) current materials for teaching pronunciation (textbooks, videotapes, computer software, Internet resources). Students gain experience in teaching pronunciation while providing valuable and meaningful service to community partners who want help with oral components of English as a second language. P/NP or letter grading.

C114. Listening and Speaking for Second/Foreign/Heritage Language Education. (4) Lecture, four hours. Requisite: course 101W or C110. Survey of theoretical and methodological issues related to second/foreign/heritage language spoken discourse, including critical examination of research paradigms and classroom materials. Concurrently scheduled with course C214. P/NP or letter grading.

C115A. Media for Second/Foreign/Heritage Language Education. (4) Lecture, four hours. Requisite: course 101W or C110. Rationale and pedagogical application for using media equipment and materials in second/foreign/heritage language classroom. Training in standard classroom media equipment operation, basic materials preparation, and production techniques, and review of published media materials, with focus on their application to second/foreign/heritage language instruction. Concurrently scheduled with course C215A. P/NP or letter grading.

C115B. Computer-Enhanced Language Teaching and Learning. (4) Seminar, four hours; fieldwork, four hours. Requisite: course 101W or C110. Designed for students interested in computer-enhanced language learning in second/foreign/heritage language environments. Web-based teaching (basics of creating and maintaining class websites), designing computer-enhanced teaching materials (e.g., PowerPoint presentations), managing classroom data (e.g., Excel grade calculation), and creating electronic teaching portfolios, with focus on pedagogical rationale for classroom instruction and on professionalizing current second/foreign/heritage language teaching methods through application of computer technology. Project-based seminar to encourage participants to develop materials, either individually or collaboratively, for their current or intended teaching settings/populations. Concurrently scheduled with course C215B. Letter grading.

C116. English Grammar for Second/Foreign/Heritage Language Education. (4) Lecture, four hours; laboratory, two hours. Requisite: Linguistics 20. Survey of English grammatical structures, with insights from discourse analysis and functional grammar. Emphasis on application of knowledge to ESL/EFL/heritage teaching. May be concurrently scheduled with course C216. Letter grading.

C117. Literature in Second/Foreign/Heritage Language Education. (4) Lecture, four hours. Requisite: course 101W or C110. Survey of theoretical and methodological issues related to teaching literature to students in ESL/EFL/heritage settings and examination of appropriate classroom materials. Strong emphasis on cultural basis for literature. Concurrently scheduled with course C217. P/NP or letter grading.

117SL. Teaching Literature in Language Education through Service Learning. (5) Lecture, four hours; fieldwork, four hours. Development of rationale for selecting, evaluating, and using literary works in second language or ESL/EFL settings. Students tutor foreign language and ESL students at selected service learning community partner sites and actively reflect on, analyze, and discuss ways in which they used skills and ideas presented in class and readings. Students share observations with and make suggestions to one another regarding their service to relate their experiences to course material and ensure mutually beneficial relationship between academic and community partners. Design of integrated all-skills unit that draws on student background knowledge and specific issues raised during service. Course projects may focus on ESL/EFL or English as a foreign/heritage language instruction. P/NP or letter grading.

C118A. Fundamentals of Second/Foreign/Heritage Language Teaching. (4) Seminar, four hours. Requisite: course 101W or C110. Designed for students interested in microcomponents of effective second/foreign/heritage language teaching. In-depth examination of decision-making process underlying planning and implementation of lessons. Provides structured environment in which to hone fundamental teaching skills such as conducting warm-up activities, managing student dynamics, eliciting student contributions, correcting errors, sequencing lesson components, and transitioning between them. Concurrently scheduled with course C218A. P/NP or letter grading.

C118B. Second/Foreign/Heritage Language Teaching Practicum. (4) Seminar, three hours; fieldwork, four hours. Requisites: courses 101W or C110, C116. Theoretical and practical concerns regarding second/foreign/heritage language teaching, with emphasis on fieldwork experiences and grounding of solutions to problems faced in current research in language education and language pedagogy. Concurrently scheduled with course C218B. P/NP or letter grading.

C119A-C119B. Current Issues in Second/Foreign/Heritage Language Education. (4-2) Requisite: course 101W or C110. Specialized topics in language education. Emphasis varies according to current topics of theoretical concern in field of second/foreign/heritage language education. May be repeated for credit with topic change. Concurrently scheduled with courses C219A-C219B. P/NP or letter grading. **C119A.** Seminar, four hours; **C119B.** Seminar, two hours.

121SL. Oral History: Latino New Immigrant Youth. (5) (Formerly numbered 121.) Seminar, three hours; tutoring, two hours. Theory, methodology, and practice of oral history, together with background information on Latino immigration to U.S. Readings include oral histories of Latino immigrants. Letter grading.

M125. Language Socialization. (4) (Same as Anthropology M149E.) Seminar, four hours. Exploration of process of socialization through language, and socialization to use language across lifespan, across communities of practice within single society, and across different ethnic and socioeconomic groups. Examination of ways in which verbal interaction between novices and experts is structured linguistically and culturally. Letter grading.

CM127. Animal Communication. (5) (Same as Anthropology M127 and Communication Studies M127.) Lecture, four hours. Designed for Anthropology, Applied Linguistics, and Communication Studies majors. Evolution, functions, design, and diversity of animal communication systems such as bird song, dolphin calls, whale song, primate social signals, and human language. Concurrently scheduled with course C292. Letter grading.

CM128. Teaching and Learning of Heritage Languages. (4) (Same as Slavic CM114.) Lecture, three hours. Consideration of issues relevant to heritage language learners (HLL) and to heritage language (HL) instruction. Readings and discussion on such topics as definitions of HLLs and HLLs; linguistic, demographic, sociolinguistic, and sociocultural profile of HLLs, particularly HL groups most represented among UCLA students; institutional and instructor attitudes toward HLLs; impact of student motivation and expectations on HL curriculum and teaching approaches; similarities and differences between HLLs and foreign language learners (FLLs) regarding teaching methods and materials; diagnostic testing and needs analysis; use of oral/aural proficiency as springboard for literacy instruction; optimization of instruction of mixed HL and FL classes. Action research component included. Concurrently scheduled with course CM228. P/NP or letter grading.

C140. Design and Development of Language Assessment Procedures. (4) Seminar, four hours. Enforced requisite: course C157. Considerations in design and development of language assessment procedures and major types of assessment procedures for different language abilities. Practical experience in design and construction of assessment procedures. Project required. Concurrently scheduled with course C240. Letter grading.

C141. Analysis and Use of Language Assessment Data. (4) Seminar, four hours. Enforced requisite: course C157. Collection, analysis, and use of data from language assessment procedures. Topics include collecting feedback, descriptive statistics, qualitative data reduction techniques, item analysis and approaches to estimation of reliability and to validation of data-based interpretations. Project required. Concurrently scheduled with course C241. Letter grading.

C153. Functional Foundations of Language. (4) Seminar, four hours. Requisite: Linguistics 20. Introduction to analysis and description of form, meaning, and function of structures (morphological and syntactic), lexical items, and linguistic features of discourse. Exploration of variety of approaches integrating form, meaning, and function. Concurrently scheduled with course C201. Letter grading.

C155. Foundations of Language Acquisition. (4) Seminar, four hours. Requisite: Linguistics 20. Introduction to theoretical and empirical research in language acquisition and second language acquisition. Linguistic nature of learners, interlanguage systems, and underlying cognitive mechanisms posited to explain them, as well as various social, affective, cognitive, and neurobiological factors that affect ultimate success of learner. Concurrently scheduled with course C202. Letter grading.

C157. Foundations of Language Assessment. (4) Seminar, four hours. Conceptual foundations of language assessment, including nature of language ability, nature of measurement, uses of language assessment in research, types and characteristics of assessment methods, reliability, and validity. Current issues and problems in language assessment. Concurrently scheduled with course C204. Letter grading.

M161W. Talk and Body. (5) (Formerly numbered M161.) (Same as Anthropology M148W and Communication Studies M123W.) Lecture, four hours; discussion, one hour. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Relationship between language and human body raises host of interesting topics. New approaches to phenomena such as embodiment become possible when body is analyzed, not as isolated entity, but as visible agent whose talk and action are lodged within both processes of human interaction and rich settings where people pursue courses of action that count in their lives. Satisfies Writing II requirement. Letter grading.

M165SL. Taking It to Street: Spanish in Community. (5) (Same as Spanish M165SL.) Seminar, three hours; fieldwork, 10 hours. Requisite: Spanish 25 or 27. Service learning course to give students opportunity to use cultural and linguistic knowledge acquired in Spanish classes in real-world settings. Students required to spend minimum of eight to 10 hours per week at agreed on site in Latino community. P/NP or letter grading.

170. Field Methods in Discourse and Society. (4) Seminar, four hours. Ethnographic approaches to recording and analyzing communicative events and practices in their sociocultural context, involving student-initiated fieldwork in community settings. Emphasis on hands-on activities within theoretical frameworks that consider language as social and cultural practice. Letter grading.

M172SL. Latinos, Linguistics, and Literacy. (5) (Same as Chicana and Chicano Studies M170SL, Honors Collegium M128SL, and Spanish M172SL.) Seminar, four hours; field project, four to six hours. Recommended requisite: Spanish 100A. In-depth study of various topics related to literacy, including different definitions of literacy, programs for adult preliterates, literacy and gender, approaches to literacy (whole language, phonics, Freire's liberation pedagogy), history of writing systems, phoneme as basis for alphabetic writing, and national literacy campaigns. Required field project involving Spanish-speaking adults in adult literacy programs. P/NP or letter grading.

C175. Critical Approaches to Multilingualism. (5) Seminar, four hours. Examination of how identities and social relationships are defined through language in multilingual societies, with focus on how they have been disrupted, modified, and/or (re)created in societies that have experienced colonialism. Assessment of effects of colonial and postcolonial language politics (policies and ideologies) in verbal arts, media, education, government, and everyday conversation. How might critical applied linguistics in general, and post-colonial theory in particular, help to better understand politics of language use in multilingual contexts? Concurrently scheduled with course C275. P/NP or letter grading.

195. Community Internships in Applied Linguistics and TESL. (5) Tutorial, one hour; fieldwork, 10 hours. Limited to juniors/seniors. Internship in supervised setting in community agency or business. Students meet on regular basis with instructor and provide journal of their experience. Final research paper required. May be repeated for credit. Individual contract with supervising faculty member required. Letter grading.

197. Individual Studies in Applied Linguistics. (4) Tutorial, four hours. Limited to juniors/seniors. Individual intensive study for undergraduate students who desire more advanced or specialized treatment of issues in applied linguistics beyond those covered in current course offerings. Scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of

subject matter required. May be repeated for credit. Individual contract required; see undergraduate student adviser. Letter grading.

198. Honors Research in Applied Linguistics and TESL. (4) Tutorial, four hours. Limited to juniors/seniors. Development and completion of honors thesis or research project under direct supervision of faculty member. May be repeated for credit. Individual contract required. Letter grading.

199. Directed Research in Applied Linguistics and TESL. (4) Tutorial, four hours. Limited to juniors/seniors. Supervised individual research under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. Letter grading.

Graduate Courses

200. Research in Applied Linguistics. (4) Seminar, four hours. Requisites: courses C201, C202, C204, and M206 or M207. Within context of one current research area in applied linguistics (language assessment, language acquisition, discourse/grammar analysis), all M.A. students prepare and submit viable research proposal for M.A. thesis. Letter grading.

C201. Functional Foundations of Language. (4) Seminar, four hours. Requisite: Linguistics 20. Introduction to analysis and description of form, meaning, and function of structures (morphological and syntactic), lexical items, and linguistic features of discourse. Exploration of variety of approaches integrating form, meaning, and function. Concurrently scheduled with course C153. Letter grading.

C202. Foundations of Language Acquisition. (4) Seminar, four hours. Requisite: Linguistics 20. Introduction to theoretical and empirical research in language acquisition and second language acquisition. Linguistic nature of learners, interlanguage systems, and underlying cognitive mechanisms posited to explain them, as well as various social, affective, cognitive, and neurobiological factors that affect ultimate success of learner. Concurrently scheduled with course C155. Letter grading.

C204. Foundations of Language Assessment. (4) Seminar, four hours. Conceptual foundations of language assessment, including nature of language ability, nature of measurement, uses of language assessment in research, types and characteristics of assessment methods, reliability, and validity. Current issues and problems in language assessment. Concurrently scheduled with course C157. Letter grading.

M206. Social Foundations of Language. (4) (Same as Anthropology M240.) Seminar, four hours. Requisite: Linguistics 20. Basic grounding in sociolinguistic theory and methodology. Introduction to current issues in study of tested behavior, including varied ways scholars visualize relation between language and social context. S/U or letter grading.

M207. Ethnography of Communication. (4) (Same as Anthropology M242.) Lecture, three hours. Designed for graduate students. Seminar devoted to examining representative scholarship from fields of sociolinguistics and ethnography of communication. Particular attention to theoretical developments including relationship of ethnography of communication to such disciplines as anthropology, linguistics, and sociology. Topical foci include style and strategy, speech variation, varieties of noncasual speech genres, languages and ethnicity, and nonverbal communication behavior. S/U or letter grading.

208. Foundations of Discourse Analysis. (4) Seminar, four hours. Requisite: Linguistics 20. Survey course to introduce basic tenets of discourse analysis, including discourse analysis and syntax, planned and unplanned discourse, conversational analysis, analysis of speech events, unequal power discourse, and analysis of classroom discourse. Letter grading.

209. Introduction to Doctoral Studies in Applied Linguistics. (4) Seminar, four hours. Limited to Ph.D. students. Broad overview of fundamental and current philosophical issues in field of applied linguistics. Topics include epistemology for applied linguistics, nature of language, symbolic and physical worlds and cau-

sality in applied linguistics research, critical applied linguistics, and approaches and methodologies for research in applied linguistics. Discussion of illustrative research studies in applied linguistics. S/U grading.

C210. Methodology for Second/Foreign/Heritage Language Education. (4) Lecture, four hours. Requisites: course C202, Linguistics 20. Survey of theory and practice in teaching second/foreign/heritage languages, including (1) past and present methods used to teach second/foreign/heritage languages, (2) current theory and practice underlying skills-based instruction and integrated approaches, (3) factors that affect second language acquisition and learning. Development of knowledge base in and rational basis for design, development, implementation, and evaluation of second/foreign/heritage language programs. Concurrently scheduled with course C110. S/U or letter grading.

C211. Writing for Second/Foreign/Heritage Language Education. (4) Lecture, four hours. Requisite: course 101W or C110. Survey of theoretical and methodological issues related to second/heritage language written discourse and composition for second/heritage language writers, including critical examination of classroom research and overview of issues in evaluating and responding to written text. Concurrently scheduled with course C111. Additional assignments required of graduate students. S/U or letter grading.

C212. Reading for Second/Foreign/Heritage Language Education. (4) Lecture, four hours. Requisite: course C210. Survey of theoretical and methodological issues related to second/foreign/heritage language reading, including critical examination of reading research and evaluation of research paradigms and classroom materials. Concurrently scheduled with course C112. Additional assignments required of graduate students. S/U or letter grading.

C213. Phonetics for Second/Foreign/Heritage Language Education. (4) Lecture, four hours. Requisite: Linguistics 20. Examination of phonological structure of contemporary American English, with emphasis on appropriate teaching techniques in ESL/EFL/heritage settings, including critical examination of classroom materials and overview of methods of evaluating student pronunciation. Concurrently scheduled with course C113. Additional assignments required of graduate students. S/U or letter grading.

C214. Listening and Speaking for Second/Foreign/Heritage Language Education. (4) Lecture, four hours. Requisite: course C210. Survey of theoretical and methodological issues related to second/foreign/heritage language spoken discourse, including critical examination of research paradigms and classroom materials. Concurrently scheduled with course C114. S/U or letter grading.

C215A. Media for Second/Foreign/Heritage Language Education. (4) Lecture, four hours. Requisite: course C210. Rationale and pedagogical application for using media equipment and materials in second/foreign/heritage language classroom. Training in standard classroom media equipment operation, basic materials preparation, and production techniques, and review of published media materials, with focus on their application to second/foreign/heritage language instruction. Concurrently scheduled with course C115A. S/U or letter grading.

C215B. Computer-Enhanced Language Teaching and Learning. (4) Seminar, four hours; fieldwork, four hours. Requisite: course C210. Designed for students interested in computer-enhanced language learning in second/foreign/heritage language environments. Web-based teaching (basics of creating and maintaining class websites), designing computer-enhanced teaching materials (e.g., PowerPoint presentations), managing classroom data (e.g., Excel grade calculation), and creating electronic teaching portfolios, with focus on pedagogical rationale for classroom instruction and on professionalizing current second/foreign/heritage language teaching methods through application of computer technology. Project-based seminar to encourage participants to develop materials, either in-

dividually or collaboratively, for their current or intended teaching settings/populations. Concurrently scheduled with course C115B. Letter grading.

C216. English Grammar for Second/Foreign/Heritage Language Education. (4) Lecture, four hours; laboratory, two hours. Requisite: Linguistics 20. Survey of English grammatical structures, with insights from discourse analysis and functional grammar. Emphasis on application of knowledge to ESL/EFL/heritage teaching. May be concurrently scheduled with course C116. Letter grading.

C217. Literature in Second/Foreign/Heritage Language Education. (4) Lecture, four hours. Requisite: course C210. Survey of theoretical and methodological issues related to teaching literature to students in ESL/EFL/heritage settings and examination of appropriate classroom materials. Strong emphasis on cultural basis for literature. Concurrently scheduled with course C117. Additional assignments required of graduate students. S/U or letter grading.

C218A. Fundamentals of Second/Foreign/Heritage Language Teaching. (4) Seminar, four hours. Requisite: course C210. Designed for students interested in microcomponents of effective second/foreign/heritage language teaching. In-depth examination of decision-making process underlying planning and implementation of lessons. Provides structured environment in which to hone fundamental teaching skills such as conducting warm-up activities, managing student dynamics, eliciting student contributions, correcting errors, sequencing lesson components, and transitioning between them. Concurrently scheduled with course C118A. S/U or letter grading.

C218B. Second/Foreign/Heritage Language Teaching Practicum. (4) Seminar, three hours; fieldwork, four hours. Requisites: courses C210, C216. Theoretical and practical concerns regarding second/foreign/heritage language teaching, with emphasis on fieldwork experiences and grounding of solutions to problems faced in current research in language education and language pedagogy. Concurrently scheduled with course C118B. S/U or letter grading.

C219A-C219B. Current Issues in Second/Foreign/Heritage Language Education. (4-2) Requisite: course C210. Specialized topics in language education. Emphasis varies according to current topics of theoretical concern in field of second/foreign/heritage language education. May be repeated for credit with topic change. Concurrently scheduled with courses C119A-C119B. Additional assignments required of graduate students. S/U or letter grading. **C219A.** Seminar, four hours; **C219B.** Seminar, two hours.

220. Second Language Acquisition Research. (4) Seminar, four hours. Recommended preparation: some background in functional linguistics. Requisite: Linguistics 20. Survey of selected topics on second and foreign language acquisition. Letter grading.

221. Experiential Seminar: Second Language Learning. (4) Seminar, four hours. Students learn one uncommonly taught language with use of authentic language materials (video and audio recordings and print materials). Discussion of experience in terms of issues in language learning and language teaching. S/U or letter grading.

222. Discourse-Centered Language Learning. (4) Seminar, four hours. Requisite: course C202. Case-study and project-based research seminar on classroom language learning with authentic discourse input (usually in form of video and audio recordings of natural spoken discourse). Development of theoretical and technical tools for determining what can be learned from such recordings and how this learning might be facilitated, based on current second language acquisition research. Letter grading.

223. Topics in Psycholinguistics. (4) Seminar, four hours. Requisite: course C202. Detailed examination of specialized topics in psycholinguistics. Topics vary from year to year and may include language and cognitive science, types and theories of bilingualism, learning theories and their influence on language teaching. May be repeated for credit with topic change. Letter grading.

M224. Language Socialization. (4) (Same as Anthropology M248.) Seminar, four hours. Requisite: course M206. Exploration of process of socialization through language and socialization to use language across lifespan, across communities of practice within single society, and across different ethnic and socioeconomic groups. Ways in which verbal interaction between novices and experts is structured linguistically and culturally. S/U or letter grading.

CM228. Teaching and Learning of Heritage Languages. (4) (Same as Slavic CM214.) Lecture, three hours. Consideration of issues relevant to heritage language learners (HLL) and to heritage language (HL) instruction. Readings and discussion on such topics as definitions of HLLs and HLLs; linguistic, demographic, sociolinguistic, and sociocultural profile of HLLs, particularly HL groups most represented among UCLA students; institutional and instructor attitudes toward HLLs; impact of student motivation and expectations on HL curriculum and teaching approaches; similarities and differences between HLLs and foreign language learners (FLLs) regarding teaching methods and materials; diagnostic testing and needs analysis; use of oral/aural proficiency as springboard for literacy instruction; optimization of instruction of mixed HL and FL classes. Action research component included. Concurrently scheduled with course CM128. S/U or letter grading.

229. Current Issues in Language Acquisition. (4) Seminar, four hours. Requisite: course C202. Designed to explore current issues in language acquisition from both theoretical and applied research perspectives and to provide actual experience in addressing current topic. Specific topics vary according to trends in field. May be repeated for credit with topic change. Letter grading.

230. Advanced Seminar: Interlanguage Analysis. (4) Seminar, four hours. Requisite: course 220. Analysis of interlanguage from various points of view (e.g., topic-comment structure, tense, aspect, modality, thematic structure of utterances), with aim of understanding how interlanguage is organized. Original research projects. May be repeated for credit with topic change. Letter grading.

231. Crosslinguistic Topics in Language Acquisition. (4) Seminar, four hours. Requisite: course 220. Advanced seminar on language acquisition in which one particular linguistics topic (e.g., development of tense/aspect, reference, subordination, agreement) is pursued from crosslinguistic and cross-disciplinary perspectives. Focus on language-specific versus universal (i.e., crosslinguistically valid) mechanisms of language development. May be repeated for credit with topic change. Letter grading.

M232. Culture, Brain, and Development Forum. (1) (Same as Anthropology M293, Education M285, Neuroscience M293, and Psychology M248.) Seminar, 90 minutes every other week. Interdisciplinary seminar series to provide students with exposure to current research in understanding complex relationship between culture, brain, and development. S/U grading.

M233. Culture, Brain, and Development. (4) (Same as Anthropology M293S, Education M286, and Psychology M247.) Seminar, three hours. Designed for graduate students. Integration of knowledge across different disciplines to understand interrelations of culture, brain, and development, where development includes both human ontogeny and human phylogeny. S/U or letter grading.

238. Neurobiology of Language and Learning Research Laboratory. (4) Laboratory, four hours; fieldwork/research, eight hours. Research in neurobiology of language and learning, with focus on critical reading of relevant publications. Students must work toward specific program-relevant product, such as thesis, dissertation proposal, qualifying paper, dissertation, research paper, or grant proposal. May be repeated for credit with topic change. S/U or letter grading.

C240. Design and Development of Language Assessment Procedures. (4) (Formerly numbered 240.) Seminar, four hours. Enforced requisite: course C204. Considerations in design and development of

language assessment procedures and major types of assessment procedures for different language abilities. Practical experience in design and construction of assessment procedures. Project required. Concurrently scheduled with course C140. Letter grading.

C241. Analysis and Use of Language Assessment Data. (4) (Formerly numbered 241.) Seminar, four hours. Enforced requisite: course C204. Collection, analysis, and use of data from language assessment procedures. Topics include collecting feedback, descriptive statistics, qualitative data reduction techniques, item analysis and approaches to estimation of reliability and to validation of data-based interpretations. Project required. Concurrently scheduled with course C141. Letter grading.

242. Experimental Design and Statistics for Applied Linguistics. (4) Seminar, four hours. Requisite: course C204. Specialized topics of interest to graduate students in applied linguistics, with focus on design and interpretation of research projects in field. Exploration of issues in both qualitative and quantitative study design, interpretation of findings, and presentation of results. Emphasis varies according to current theoretical methodological trends in field. Project required. Letter grading.

249. Current Issues in Language Assessment. (4) Seminar, four hours. Requisite: course C204. Designed to explore current issues in language assessment from both theoretical and practical perspectives and to provide actual experience in addressing current issues. Specific topics vary according to trends in field. May be repeated for credit with topic change. S/U or letter grading.

250. Advanced Seminar: Language Assessment. (4) Seminar, four hours. Requisites: courses C204, 241. Designed to cover application of technical issue such as reliability, validation, criterion-referenced assessment, generalizability theory, item-response theory, or program evaluation to language assessment in depth. Specific topics vary. Project required. May be repeated for credit with topic change. S/U or letter grading.

258. Assessment Laboratory. (4) Laboratory, four hours. Collaborative coursework, with focus on specific theoretical and applied issues in development of innovative language assessment procedures for use in real-world settings. Specific projects determined by research being conducted by working group in language assessment. Activities include designing and developing measurement instruments, gathering and analyzing data, and interpreting and reporting results. May be repeated for credit. S/U or letter grading.

M262. Topics in Communicative, Cognitive, and Functional Approaches to Linguistic Analysis. (4) (Same as German M264.) Seminar, three hours. Requisite: German C172 or C238. Readings, discussion, analyses, and validation procedures within sign-based linguistics, cognitive grammar, and discourse-functional approaches to language. Consideration of impact of grammaticalization theory on various non-formal approaches to synchronic linguistics. Discussion of work by Contini-Morava, Diver, Garcia, Goldberg, Janssen, Lakoff, Langacker, and Verhagen, as well as Bybee, Traugott, Hopper, and others. S/U or letter grading.

263. Crosslinguistic Topics in Functional Grammar I: Typology. (4) Seminar, four hours. Survey of particular linguistic area from typological perspective within functional grammar framework. Topics include tense/mood/aspect, nominal reference, word order. May be repeated for credit with topic change. S/U or letter grading.

264. Crosslinguistic Topics in Functional Grammar II: Discourse. (4) Discussion, four hours. Requisite: course 263. Crosslinguistic study of discourse function of grammatical devices. Topics include tense/mood/aspect, nominal reference, word order. May be repeated for credit with topic change. S/U or letter grading.

265. Topics in Functional Grammar. (4) Seminar, four hours. Requisite: course C201. Specialized topics in functional grammar of interest to graduate students in applied linguistics. Emphasis varies accord-

ing to current topics of theoretical import in field, such as voice, nominal reference, and word order. May be repeated for credit with topic change. Letter grading.

M266. Topics in Semantics and Pragmatics. (4) (Same as Anthropology M247.) Seminar, four hours. Requisite: course C201. Detailed examination of specialized topics in semantics and pragmatics. Topics vary from year to year and may include metaphor, theories of reference and denotation, honorific speech, evidentiality, reported speech, etc. May be repeated for credit with topic change. Letter grading.

267. Talk and Body. (4) Seminar, four hours. Requisite: course M206 or M207 or 208. Investigation of organization of language and embodied action within human interaction. Use of both audio and video recordings of human interaction in variety of natural settings to examine range of phenomena, including ways in which processes of interaction between speakers and hearers are consequential for detailed organization of emerging talk, projection, gaze, gesture, participation frameworks, narrative as embodied multiparty activity, integration of semiotic structure in environment within organization of talk-in-interaction, and organization of aphasia in discourse. Student presentation of relevant data in seminar format. Letter grading.

268. Crosslinguistic Research Laboratory. (4) Laboratory, four hours. Advanced procedures in data analysis in crosslinguistic research, including critical reading of relevant publications. Students must work toward specific program-relevant product, such as thesis, dissertation proposal, qualifying paper, dissertation, research paper, or grant proposal. May be repeated for credit. S/U or letter grading.

269. Current Issues in Discourse Analysis. (4) Seminar, four hours. Requisite: course M206. Specialized topics in discourse analysis of interest to graduate students in applied linguistics. Emphasis varies according to current topics of theoretical and practical concern in field. May be repeated for credit with topic change. Letter grading.

M270A-M270B. Ethnographic Methods in Language, Interaction, and Culture I, II. (4-4) (Same as Anthropology M249A-M249B.) Seminar, three hours. Two-term sequence on ethnographic approaches to recording and analyzing communicative events and practices in their sociocultural context, involving student-initiated fieldwork in community setting. Emphasis on hands-on activities within theoretical frameworks that consider language as social and cultural practice. **M270A.** Requisite: course M207 or Sociology 244A. Devoted to skills related to collecting socially and culturally meaningful data. Letter grading. **M270B.** Requisite: course M270A. Devoted to production of ethnographic analysis, including how to present analysis in form of conference talk and how to develop analysis into grant or dissertation proposal. S/U or letter grading.

M270P. Ethnographic Technologies Laboratory I. (4) (Same as Anthropology M249P.) Laboratory, four hours. Corequisite: course M270A or Anthropology M249A. Hands-on mentorship in entering communities, obtaining informed consent, interviewing, note taking, and videorecording verbal interaction. S/U grading.

M270Q. Ethnographic Technologies Laboratory II. (4) (Same as Anthropology M249Q.) Laboratory, four hours. Corequisite: course M270B or Anthropology M249B. Hands-on mentorship in editing ethnographic video footage, incorporating video frame grabs into transcript and analysis of verbal interaction, writing grant proposals, and assembling conference presentations. S/U grading.

271. Advanced Seminar: Cohesion Analysis of English Structure. (4) Seminar, four hours. Requisite: course C216. Investigation in depth of selected linguistic features of oral and written texts that go beyond sentence level and thus signal cohesion. Study of structures to determine their function in variety of English texts representing several discourse types. Letter grading.

M272. Grammar and Discourse. (4) (Same as Anthropology M246A.) Seminar, four hours. Requisite: course C201. Survey of grammar- and discourse-

based approaches to study of language as meaningful form. Topics include grammatical and indexical categories, referential and social indexicality, relation of syntax to semantics and pragmatics, markedness, universals, cultural and cognitive implications of language structure and use. S/U or letter grading.

M273. Grammar and Discourse Practicum. (4) (Same as Anthropology M246B.) Seminar, four hours. Requisite: course M272. Survey of advanced topics in grammar and discourse, including predicates, arguments and grammatical relations, noun phrase categories, case marking, verbal categories, topic marking devices, registers and speech varieties, reported speech, genre and text structure in discourse. Presentation and analysis of data from range of languages. S/U or letter grading.

274. Advanced Seminar: Contextual Analysis of English Structure. (4) Seminar, four hours. Requisite: course C216. Examination of selected words and/or structures in oral and written texts to determine when and why they occur. Beginning with frequency and distribution of form(s), exploration of meaning and function of form(s). Letter grading.

C275. Critical Approaches to Multilingualism. (5) Seminar, four hours. Examination of how identities and social relationships are defined through language in multilingual societies, with focus on how they have been disrupted, modified, and/or (re)created in societies that have experienced colonialism. Assessment of effects of colonial and postcolonial language politics (policies and ideologies) in verbal arts, media, education, government, and everyday conversation. How might critical applied linguistics in general, and postcolonial theory in particular, help to better understand politics of language use in multilingual contexts? Concurrently scheduled with course C175. S/U or letter grading.

278. Discourse Laboratory. (4) Laboratory, four hours. Requisite: course M206. Designed for Applied Linguistics Ph.D. students. Advanced procedures in data analysis in field of discourse analysis, including development of large-scale research project and critical review of current research. May be repeated for credit. S/U grading.

281. Linguistics of Translation and Interpreting. (4) Seminar, three hours. Preparation: excellent knowledge of English and one other language. Requisite: Linguistics 20. Translation and interpretation are complex activities that occur at intersection of linguistic, cognitive, social, and cultural human activities and are becoming increasingly important in globalizing world in which they figure not only in traditional arena of literary translation, but in virtually all arenas of cultural, social, political, legal, and economic life. Examination of main applied linguistic aspects of translation and interpreting across wide range of theoretical, methodological, and practical perspectives. S/U or letter grading.

288. Functional Grammar Laboratory. (4) Laboratory, four hours; fieldwork, eight hours. Critical discussion and analysis of data that is naturally occurring, made up by participants and/or their native informants, or attested in written texts. Students trained to build hypothesis based on observable data, test it by experimenting with sentences and using native input, and generalize from their conclusions. Students provide crosslinguistic correspondences of given phenomena and carry out contrastive research on discourse-pragmatic problems detected in one or another language. Emphasis on each student carrying out one particular portion of project in collaboration with and benefiting from critical feedback by fellow students. Hands-on analysis rather than reading of secondary literature. S/U grading.

291. Current Issues in Applied Linguistics. (4) Seminar, four hours. Specialized topics in applied linguistics of current relevance. Emphasis varies according to current topics of theoretical concern in field. May be repeated for credit with topic change. S/U or letter grading.

C292. Animal Communication. (5) Lecture, four hours. Designed for Anthropology, Applied Linguistics, and Communication Studies majors. Evolution,

functions, design, and diversity of animal communication systems such as bird song, dolphin calls, whale song, primate social signals, and human language. Concurrently scheduled with course CM127. Letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

400. Applied Linguistics M.A. Colloquium. (4) Seminar/student presentations, to be arranged. M.A. candidates present and defend results of their thesis research. Required of all candidates but may not be applied toward M.A. degree requirements. Candidates for Ph.D. in Applied Linguistics may also use this course to report on their dissertations. S/U grading.

495. Training and Supervision of Teaching Assistants. (2) Seminar, two or more hours. Required of all teaching assistants. Orientation, preparation, and supervision of teaching assistants. Various topics, including effective teaching methods and strategies. May not be applied toward any degree requirements. S/U grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. Directed Individual Study. (4 to 8) Tutorial, to be arranged. Limited to M.A. and Ph.D. students. Independent study in one area of applied linguistics. May not be applied toward M.A. course requirements. Up to 8 units may be applied toward Ph.D. course requirements. May be repeated for credit. S/U or letter grading.

597. Preparation for Ph.D. Candidacy Examination. (4 to 8) Tutorial, to be arranged. Preparation: completion of at least six courses of 32-unit requirement for Ph.D. May not be applied toward 32-unit requirement. May be repeated for credit. S/U grading.

598. M.A. Research and Thesis Preparation. (4 to 8) Tutorial, to be arranged. Limited to graduate students. Survey of research needs and thesis preparation. Includes optional section on experimental design and statistical methods in Fall Quarter. Credit (4 units) toward degree is allowed only once, but all M.A. candidates must enroll in course each term they are registered and engaged in thesis preparation. S/U grading.

599. Research for and Preparation of Ph.D. Dissertation. (4 to 16) Tutorial, to be arranged. Preparation: advancement to Ph.D. candidacy. Required of all Ph.D. candidates each term they are registered and engaged in dissertation preparation. May be repeated for credit but may not be applied toward Ph.D. course requirements. S/U grading.

English as a Second Language

Lower Division Courses

32. Conversation and Interaction for Academic Purposes. (4) Lecture, four hours. Development of oral skills that prepare nonnative speakers of English to improve critical listening skills, participate in class discussions, make oral presentations before audience, ask and answer questions, participate appropriately in conversations with members of academic community, and improve through self-evaluation of speech. P/NP (undergraduates), S/U (graduates), or letter grading.

33A. Introductory English for Academic Purposes. (4) Lecture, 10 hours. Requisite: proficiency demonstrated on English as a Second Language Placement Examination. Displaces 8 units on student's Study List but yields only 4 units of credit toward degree. Intensive instruction in structure of English, with

focus on vocabulary building, listening and speaking skills, and basic composition techniques. To satisfy English as a Second Language requirement, students must select letter grading. P/NP (undergraduates), S/U (graduates), or letter grading.

33B. Intermediate English for Academic Purposes. (4) Lecture, five hours. Requisite: course 33A (C or better) or proficiency demonstrated on English as a Second Language Placement Examination. Emphasis on reading comprehension, vocabulary development, and composition techniques, with additional work on structure and oral skills. To satisfy English as a Second Language requirement, students must select letter grading. P/NP (undergraduates), S/U (graduates), or letter grading.

33C. Advanced English for Academic Purposes. (4) Lecture, five hours. Requisite: course 33B (C or better) or proficiency demonstrated on English as a Second Language Placement Examination. Emphasis on academic reading, writing, study skills, and lecture comprehension. To satisfy English as a Second Language requirement, students must select letter grading. P/NP (undergraduates), S/U (graduates), or letter grading.

33G. Advanced English for Academic Purposes for Graduate Students. (4) Lecture, five hours. Requisite: course 33B (C or better) or proficiency demonstrated on English as a Second Language Placement Examination. Designed to improve academic skills of advanced ESL graduate students, using authentic graduate-level materials. Emphasis on development of academic skills necessary for success in graduate school: (1) reading skills such as reading research in academic disciplines, rate and comprehension, and vocabulary development, (2) writing skills such as summarizing and critiquing and other discipline-specific assignments, academic listening skills, and (3) academic speaking skills such as participation in discussions and making presentations. Grammar incorporated as needed, especially in regard to writing. S/U or letter grading.

34. Public Speaking for Academic Purposes. (4) Lecture, four hours. Requisite: course 33B or proficiency demonstrated on English as a Second Language Placement Examination. Designed to help nonnative speakers of English communicate effectively in academic and professional settings. Development of oral skills that prepare nonnative speakers of English to present ideas extemporaneously, lead class discussions, give lectures or speeches before audience, respond to questions posed by audience, and improve through self-evaluation of speech. P/NP (undergraduates), S/U (graduates), or letter grading.

35. Approaches to University Writing for ESL Students. (5) Lecture, four hours. Requisite: course 33C (C or better) or proficiency demonstrated on English as a Second Language Placement Examination and/or Analytical Writing Placement Examination. Composition skills for ESL students, with focus on writing process, grammatical structures key to clear and effective style, mechanics of writing, and practice with major forms of academic writing. Additional emphasis on academic reading skills. Completion of course with grade of C or better satisfies Entry-Level Writing requirement. Letter grading.

36. Composition, Rhetoric, and Language for ESL Students. (5) Lecture, four hours. Requisite: course 35 or proficiency demonstrated on English as a Second Language Placement Examination. Focus on academic argumentation and rhetorical techniques found in academic writing. Special attention to individual research, grammatical structures, and style. Satisfies Writing I requirement. Letter grading.

37. English Grammar and Style for Academic Purposes. (4) Lecture, four hours. Requisite: course 33B (may be taken concurrently) or proficiency demonstrated on English as a Second Language Placement Examination. Review of form and use of common grammatical structures found in academic discourse. Analysis of stylistic function of certain structures and practice in self-editing strategies. P/NP (undergraduates), S/U (graduates), or letter grading.

38A. Pronunciation: Stress and Intonation in English. (4) Lecture, four hours. Designed to help nonnative speakers of English communicate effectively in social as well as classroom/academic settings and improve critical listening skills. Special focus on three important aspects of pronunciation: stress, rhythm, and intonation. P/NP (undergraduates), S/U (graduates), or letter grading.

38B. Pronunciation: Sound System of English. (4) (Formerly numbered 108.) Lecture, four hours. Requisite: course 33B or 33C or 35 or proficiency demonstrated on English as a Second Language Placement Examination. Detailed and systematic study of sounds of American English and way in which they are put together in connected speech, applied to improvement of student's own accent. P/NP (undergraduates), S/U (graduates), or letter grading.

39A. Intensive Language and Fluency Training for International Teaching Assistants. (4) Lecture, six hours. Recommended for individuals whose Test of Spoken English (TSE) score is 40 or below or whose UCLA Test of Oral Proficiency (TOP) score is 6.3 or below. Designed to aid international graduate students who wish to become teaching assistants, with focus on development of general communicative competence, fluency in classroom discourse, and improvement of accuracy of pronunciation and spoken grammar. Use of specialized pronunciation software in computer laboratory. P/NP (undergraduates), S/U (graduates), or letter grading.

39B. Communication Strategies for International Teaching Assistants. (4) Lecture, four hours. Recommended for individuals whose Test of Spoken English (TSE) score is 40 or 45 or whose UCLA Test of Oral Proficiency (TOP) score is 6.4 to 7.0. Designed to help nonnative speakers of English communicate effectively as teaching assistants, with focus on presentation skills, classroom language fluency, and pronunciation accuracy. P/NP (undergraduates), S/U (graduates), or letter grading.

39C. Presentation and Discussion-Leading Skills for International Teaching Assistants. (4) Lecture, four hours. Recommended for individuals whose Test of Spoken English (TSE) score is 45 or above or whose UCLA Test of Oral Proficiency (TOP) score is 7.0 or above. Designed to help nonnative speakers of English communicate effectively as teaching assistants. Activities include interactive teaching demonstrations and leading/participating in discussions. Emphasis on self, peer, and instructor feedback. P/NP (undergraduates), S/U (graduates), or letter grading.

80. Language in Globalizing World: Second Language Interaction in Everyday Life and Academia. (4) Lecture, four hours. Enforced corequisite: Applied Linguistics 80. Designed to provide students whose first language is not English with linguistic and cultural resources to succeed in rigorous content course where students study various interactional phenomena observed in second language communication. P/NP or letter grading.

97A. Variable Topics in English as a Second Language. (4) Lecture, four hours. Enforced corequisite: course 33B or proficiency demonstrated on English as a Second Language Placement Examination. Specialized topics in English as second language or English for academic purposes. Emphasis varies according to topics covered and/or audience to whom course is directed. May be repeated for credit with topic change. P/NP (undergraduates), S/U (graduates), or letter grading.

97B. Variable Topics in English as a Second Language. (2) Lecture, two hours. Enforced corequisite: course 33B or proficiency demonstrated on English as a Second Language Placement Examination. Specialized topics in English as second language or English for academic purposes. Emphasis varies according to topics covered and/or audience to whom course is directed. May be repeated for credit with topic change. P/NP (undergraduates), S/U (graduates), or letter grading.

Upper Division Courses

101. Introduction to Language Learning and Language Teaching. (4) Lecture, four hours. Enforced corequisite: Applied Linguistics 101. Designed to provide students whose first language is not English with language support in areas of academic reading, writing, listening, and speaking. Exploration of skills and conditions involved in successful second and foreign language learning; application of this knowledge in development of framework for teaching second and foreign languages. P/NP or letter grading.

106. Advanced Composition for ESL Students. (4) Lecture, four hours. Requisites: course 36 (C or better) or proficiency demonstrated on English as a Second Language Placement Examination, and appropriate Composition Placement Test score. Focus on production of fully developed, stylistically sophisticated expository and argumentative essays based on complex academic readings. Additional emphasis on grammatical structure and style. P/NP (undergraduates), S/U (graduates), or letter grading.

107. Academic Reading and Vocabulary. (4) Lecture, four hours. Requisite: course 33C or 35 (may be taken concurrently) or proficiency demonstrated on English as a Second Language Placement Examination. Instruction in and practice of academic reading skills using authentic university texts. Focus on improving reading rate and comprehension, expanding academic vocabulary, and developing critical reading skills. P/NP (undergraduates), S/U (graduates), or letter grading.

109. Literature and Language. (4) Lecture, four hours. Requisite: course 33C or 35 (may be taken concurrently) or proficiency demonstrated on English as a Second Language Placement Examination. Selections from English and American literature presented so as to make full allowance for students' linguistic and cultural problems and to contribute to increasing command of English language. P/NP (undergraduates), S/U (graduates), or letter grading.

197. Individual Studies in English as a Second Language. (4) Tutorial, four hours. Limited to juniors/seniors. Individual intensive study for undergraduate and graduate students who desire more advanced or specialized treatment of issues in English as second language beyond those covered in current course offerings. Scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required; see academic coordinator. P/NP (undergraduates), S/U (graduates), or letter grading.

ARCHAEOLOGY

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College of Letters and Science*

UCLA
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Monica L. Smith, Ph.D., *Chair*

Faculty Administrative Committee

Jeanne E. Arnold, Ph.D. (*Anthropology*)
P. Jeffrey Brantingham, Ph.D. (*Anthropology*)
Aaron A. Burke, Ph.D. (*Near Eastern Languages and Cultures*)
Elizabeth F. Carter, Ph.D. (*Near Eastern Languages and Cultures*)
Susan B. Downey, Ph.D. (*Art History*)
Ioanna Kakoulli, D.Phil. (*Materials Science and Engineering*)

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 John K. Papadopoulos, Ph.D. (*Classics*)
 Dwight W. Read, Ph.D. (*Anthropology*)
 Gregson T. Schachner, Ph.D. (*Anthropology*)
 David A. Scott, Ph.D. (*Art History*)
 Monica L. Smith, Ph.D. (*Anthropology*)
 Charles S. Stanish, Ph.D. (*Anthropology*)
 Lothar von Falkenhausen, Ph.D. (*Art History*)
 Willemina Z. Wendrich, Ph.D. (*Near Eastern Languages and Cultures*)

Scope and Objectives

The interdisciplinary program offers M.A. and Ph.D. degrees in Archaeology. It brings together interests and specialties represented by those departments offering courses in archaeology, as well as others offering courses relevant to archaeology.

The primary purpose of the program is to train scholars in archaeology for university-level teaching and research and other professional aims. Its resources are intended for those archaeology students whose academic goals cannot be met within any single department and who, consequently, require an individually designed plan of study combining academic preparation in two or more departments. Applications are especially encouraged from students whose interests may form bridges with disciplines and departments not offering archaeology (e.g., botany, chemistry, geology, mathematics, statistics, and zoology). There are opportunities for participation in a variety of field, laboratory, and computer studies.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Archaeology Program offers Master of Arts (M.A.), Candidate in Philosophy (C.Phil.), and Doctor of Philosophy (Ph.D.) degrees in Archaeology but does not encourage applicants who seek only an M.A. degree.

Archaeology

Upper Division Courses

C110. Archaeological Materials Identification and Characterization. (4) Lecture, one hour; laboratory, two hours. Laboratory-oriented introduction for archaeologists to identification and quantitative description of solid materials, especially metals, ceramics, and other inorganic and some organic substances. Concurrently scheduled with course C210. P/NP or letter grading.

C120. Special Topics in Archaeology. (2 or 4) Lecture, three hours. Designed for juniors/seniors. Special topics on theoretical subjects in archaeology such as new strategies, regional synthesis, or current work by core program faculty or special visiting scholars. May be repeated for credit with topic change. Concur-

rently scheduled with course C220. Final project or paper required if taken for 4 units (P/NP or letter grading); 2-unit course has P/NP grading.

C159. Fieldwork in Archaeology. (2 to 12) Fieldwork, to be arranged. Participation in archaeological field excavations or museum research under supervision of staff archaeologists at UCLA. Minimum of one month of field time away from campus required. May be repeated for credit with consent of adviser. Concurrently scheduled with course C259. P/NP or letter grading.

C180. Ancient and Historic Metals: Corrosion, Technology, and Microstructure. (6) Seminar, four hours; laboratory, four hours. Overview of technology of ancient metals, aspects of extraction and alloying, corrosion that ancient metals undergo, and how this impacts their preservation. Exploration of knowledge and research work of last two decades that has substantially advanced understanding of processes of extraction, alloying, surface patination, metallic coatings, corrosion, and microstructure. Laboratory work in preparation and examination of metallic samples under microscope, as well as lectures on technology of metallic works of art. Discussion of phase and stability diagrams of common alloying systems and environments. Metallographic study samples represent Bronze Age Europe, Renaissance Europe, China from Warring States to Tang dynasty, Japanese swordmaking, Indian high-tin bronze alloys, bronzes, Peruvian, Colombian, Costa Rican, and Panamanian copper and gold-copper alloys. Concurrently scheduled with course C280. Letter grading.

Graduate Courses

M201A-M201B. Graduate Core Seminars: Archaeology. (4-4) (Same as Anthropology M201A-M201B.) Seminar, three hours. Required of all students. Seminar discussions based on carefully selected list of 25 major works related to development of archaeology in social sciences (M201A) and humanities (M201B). Compulsory core seminars provide students with foundation in breadth of knowledge required of professional archaeologists. Archaeological historiography, survey of world archaeology, and archaeological techniques. Emphasis on appreciation of multidisciplinary background of modern archaeology and relevant interpretative strategies. May be repeated for credit with consent of adviser. S/U or letter grading.

M201C. Archaeological Research Design. (4) (Same as Ancient Near East M201.) Seminar, three hours. Prerequisites: courses M201A, M201B. How to design archaeological projects in preparation for M.A. thesis or Ph.D. phase. Students do exploratory research to select subject, then write research design that could form basis for extensive paper, grant application, or oral examination. Students work closely with faculty members and report weekly on their progress. Preparation of at least two oral progress-report presentations, one on theoretical framework and one on practical aspects of project. Final written research design that incorporates theoretical and practical aspects of research and formulates bridging arguments required. S/U or letter grading.

M205A. Selected Laboratory Topics in Archaeology. (4) (Same as Anthropology M212S.) Lecture, three hours. Designed for graduate students in archaeology or in other departments. Specialized analysis of particular classes of cultural remains. Topic may be one of following: zooarchaeology, paleoethnobotany, ceramics, lithic analysis, rock art. Laboratory experience with collections and data. May be repeated for credit with topic change. S/U or letter grading.

M205B. Intensive Laboratory Training in Archaeology. (6) (Same as Anthropology M212T.) Lecture, three hours; laboratory, two hours minimum. Advanced laboratory training for graduate students with extended laboratory hours. Special laboratory-based topics, including but not limited to lithic analysis, ceramic analysis, zooarchaeology, and paleoethnobotany. May be repeated for credit with topic change. S/U or letter grading.

C210. Archaeological Materials Identification and Characterization. (4) Lecture, one hour; laboratory, two hours. Laboratory-oriented introduction for archaeologists to identification and quantitative description of solid materials, especially metals, ceramics, and other inorganic and some organic substances. Concurrently scheduled with course C110. S/U or letter grading.

M214. Comparative Study of Ancient States. (4) (Same as Anthropology CM214S.) Lecture, three hours. Comparative anthropological study of first complex societies in Near East, Mesoamerica, and Andes, including early Egyptian, Uruk, Teotihuacan, classic Maya, Wari, and Tiwanaku, with focus on political and economic structures of these societies and on causes of state development and collapse. S/U or letter grading.

C220. Special Topics in Archaeology. (2 or 4) (Formerly numbered 220.) Lecture, three hours. Special topics on theoretical subjects in archaeology such as new strategies, regional synthesis, or current work by core program faculty or special visiting scholars. May be repeated for credit with topic change. Concurrently scheduled with course C120. Final project or paper required if taken for 4 units (S/U or letter grading); 2-unit course has S/U grading.

C259. Fieldwork in Archaeology. (2 to 12) Fieldwork, to be arranged. Participation in archaeological field excavations or museum research under supervision of staff archaeologists at UCLA. Minimum of one month of field time away from campus required. May be repeated for credit with consent of adviser. Concurrently scheduled with course C159. S/U or letter grading.

M265. Depositional History and Stratigraphic Analysis. (4) (Same as Ancient Near East M265.) Lecture, two hours. Theoretical understanding of depositional processes ("laws") which lead to site formation and of stratigraphic procedures to be used in recovery of embedded cultural materials. Study of issues covered in literature, with specific test cases from actual excavations and site reports. Coverage of theoretical implications of such disciplines as surveying and pedology with help of specialists. S/U or letter grading.

C280. Ancient and Historic Metals: Corrosion, Technology, and Microstructure. (6) Seminar, four hours; laboratory, four hours. Overview of technology of ancient metals, aspects of extraction and alloying, corrosion that ancient metals undergo, and how this impacts their preservation. Exploration of knowledge and research work of last two decades that has substantially advanced understanding of processes of extraction, alloying, surface patination, metallic coatings, corrosion, and microstructure. Laboratory work in preparation and examination of metallic samples under microscope, as well as lectures on technology of metallic works of art. Discussion of phase and stability diagrams of common alloying systems and environments. Metallographic study samples represent Bronze Age Europe, Renaissance Europe, China from Warring States to Tang dynasty, Japanese swordmaking, Indian high-tin bronze alloys, bronzes, Peruvian, Colombian, Costa Rican, and Panamanian copper and gold-copper alloys. Concurrently scheduled with course C180. Letter grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. Individual Studies for Graduate Students. (2 to 12) Tutorial, to be arranged. May be repeated for credit with consent of adviser. S/U or letter grading.

597. Preparation for Ph.D. Qualifying Examinations. (2 to 12) Tutorial, to be arranged. Preparation: completion of formal coursework, passing of language examinations before enrollment. May be repeated for credit with consent of adviser. S/U grading.

598. M.A. Paper Preparation. (2 to 12) Tutorial, to be arranged. May be repeated for credit with consent of adviser. S/U grading.

599. Ph.D. Dissertation Research and Preparation. (2 to 12) Tutorial, to be arranged. May be repeated for credit with consent of adviser. S/U grading.

ARCHITECTURE AND URBAN DESIGN

School of the Arts and Architecture

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Hitoshi Abe, Ph.D., *Chair*

Professors

Hitoshi Abe, Ph.D.
Dana Cuff, Ph.D.
Neil M. Denari, M.Arch.
Diane G. Favro, Ph.D.
Craig E. Hodgetts, M.Arch.
Sylvia Lavin, Ph.D.
Robin S. Liggett, Ph.D.
Greg S. Lynn, M.Arch.
Mark Mack, M.Arch.
Thom Mayne, M.Arch.
Barton Myers, M.Arch.
Ben J. Refuerzo, M.Arch.
Dagmar E. Richter, Dipl.Arch.

Professors Emeriti

Marvin Adelson, Ph.D.
Samuel Aroni, Ph.D.
Baruch Givoni, Ph.D.
Thomas S. Hines, Ph.D.
F. Eugene Kupper, M.Arch.
Jurg Lang, Dipl.Arch.
Murray A. Milne, M.Arch.
George Rand, Ph.D.
Richard Schoen, M.Arch.
Thomas R. Vreeland, Jr., M.Arch.
Richard S. Weinstein, M.A.

Assistant Professors

Michael Osman, Ph.D.
Jason K. Payne, M.Arch.
Heather L. Roberge, M.Arch.

Adjunct Professor

Alan Locke, M.Sc.

Adjunct Associate Professor

Roger Sherman, M.Arch.

Scope and Objectives

The Department of Architecture and Urban Design at UCLA offers a Bachelor of Arts degree in Architectural Studies and four graduate degree programs tailored to the needs of different groups of students: M.Arch. I, M.Arch. II, M.A., and Ph.D.

The B.A. in Architectural Studies is a two-year program, with focus on the built environment. The curriculum visualizes architecture as a cultural, creative, and technical practice and a discipline with direct social impact. Within the context of a liberal arts education, a finely balanced set of architecture and urban design courses, ranging from the history and theory of design to contemporary building technologies, provides students with a diverse foundation of

knowledge in the field of architecture and prepares them for graduate school and/or careers in a wide range of fields.

M.Arch. I is a three-year first professional degree program accredited by the National Architectural Accrediting Board (NAAB). It does not assume any prior background in architecture. Students who do have some prior architecture background (e.g., a four-year undergraduate degree) may also enter the program and may petition to waive certain required courses and substitute more advanced electives in their place. M.Arch. I graduates normally pursue professional careers in architectural practice.

M.Arch. II is an advanced professional degree program for students who already hold a first professional degree in architecture. It provides opportunities for intensive concentration in a variety of areas of professional specialization.

The M.A. and Ph.D. degree programs provide opportunities to pursue research and scholarship in the field of architecture. Graduates typically pursue academic or applied research and consulting careers.

In the U.S. most state registration boards require a degree from an accredited professional degree program as a requisite for licensure. NAAB, the sole agency authorized to accredit U.S. professional degree programs in architecture, recognizes two types of degrees: Bachelor of Architecture and Master of Architecture. A program may be granted a five-year, three-year, or two-year term of accreditation, depending on its degree of conformance with established standards. Master's degree programs may consist of a preprofessional undergraduate degree and a professional graduate degree which, when earned sequentially, comprise an accredited professional education. However, the preprofessional degree is not, by itself, recognized as an accredited degree.

Undergraduate Study

Architectural Studies B.A.

Admission

Students are admitted for Fall Quarter only. Admission is highly competitive, and only a limited number of students are admitted each year. UCLA students may apply for admission in Spring Quarter of their second year in residence, must have at least a 3.0 cumulative grade-point average, and are required to complete the Preparation for the Major courses, with grades of B or better, before applying for admission. Transfer students must have at least a 3.0 cumulative GPA and are expected to complete the Preparation for the Major courses during their first year in residence. All applicants must submit a statement of interest and three 8x10 images of creative work. Applications are available in the department office to regularly enrolled UCLA students during the previous Fall Quarter. For further information, consult the undergraduate adviser.

Preparation for the Major

Required: Architecture and Urban Design 10A, 10B, 30.

The Major

Required: Architecture and Urban Design 121, 122, 123, 131, 132, 133, 141, 142, 143.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Architecture and Urban Design offers Master of Architecture I (M.Arch. I) and Master of Architecture II (M.Arch. II) degrees, and Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.) degrees in Architecture. A concurrent degree program (Architecture M.Arch. I/ Urban Planning M.U.R.P.) is also offered.

Architecture and Urban Design

Lower Division Courses

10A. History of Architecture and Urban Design: Prehistory to Mannerism. (5) Lecture, three hours; discussion, one hour; outside study, 11 hours. Developments in architecture and urban design from prehistory to 1600, constructing critical positions within which implications of terms history, architecture, city, and culture can be explored. Focus on examples from Europe and Mediterranean Basin and periodic exploration of world context. P/NP or letter grading.

10B. History of Architecture and Urban Design: Baroque to Contemporary Moment. (5) Lecture, three hours; discussion, one hour; outside study, 11 hours. Survey of architectural and urban history from baroque to contemporary moment that covers significant buildings, spaces, artifacts, and theories of modernism. Architecture performs as reflection of cultural, sociopolitical, philosophical, and technological transformations in world history. Stylistic genres, applied terminology, seminal texts, and alternative historiographies that apply to design of built domain that ranges in scale from details to cities. While canon of Western tradition remains overall focus, weekly thematic categories provide variety of conduits for addressing architecture and urban design in global context. P/NP or letter grading.

30. Introduction to Architectural Studies. (5) Lecture, three hours; discussion, one hour; outside study, 11 hours. Exploration of role of built environment in social, cultural, and political life: how buildings are constructed, what they mean, effects they have on world, and ways they imagine new futures and shape private and public life. Focus on series of contemporary case studies for what each reveals about new possibilities for shaping world in which we live, with emphasis on how architecture extends to cities, roads, books, and films. Consideration of historical context and cultural genealogy of particular buildings and environments, material and economic conditions of building, and more. P/NP or letter grading.

Upper Division Courses

102. Introduction to Representation. (2) Studio, four hours; outside study, two hours. Limited to currently enrolled college/university students and gradu-

ates of colleges/universities. Introduction to techniques of spatial representation as they relate to architectural design. How to communicate using two- and three-dimensional drawing and modeling. Analog and digital techniques and opportunity afforded by moving between both. Analog techniques include orthographic and axonometric projection. Digital techniques focus on computer graphics fundamentals, including bit map and vector graphic imaging using Adobe suite and modeling using Rhinoceros. Offered in summer only. Letter grading.

103. Introduction to Architectural Design. (6) Studio, 18 hours. Limited to currently enrolled college/university students and graduates of colleges/universities. Introduction to basic architectural design principles and problem solving. How to control point, line, surface, and volume to shape spaces for human use. Visual analysis as tool for discussing and understanding organization. Techniques of repetition, variation, order, scale, and rhythm. Use of case-study analysis to uncover disciplinary issues within design problems and production of individual solutions to problems. Offered in summer only. Letter grading.

121. Studio I. (6) Studio, eight hours; outside study, 10 hours. Limited to Architectural Studies majors. Introduction to basic architectural design principles and problem solving: how to control point, line, surface, and volume to shape spaces for human use. Visual analysis as tool for discussing and understanding organization. Techniques of repetition, variation, order, scale, and rhythm. Use of case-study analysis to uncover disciplinary issues within design problems, as well as to produce individual solutions to those problems. Letter grading.

122. Studio II. (6) Studio, eight hours; outside study, 10 hours. Enforced requisite: course 121. Limited to Architectural Studies majors. Issues of inhabitation, domesticity, and program. Architectural precedents and principles of spatial organization. Relationship of architectural form to human body and role of architectural space in choreography of human activity. Understanding and application of knowledge of architectural tectonics, structure, and measurement. Letter grading.

123. Studio III. (6) Studio, eight hours; outside study, 10 hours. Enforced requisites: courses 121, 122. Limited to Architectural Studies majors. Introduction to disciplinary issues, techniques, and organizations of landscape and how those can influence design of building and site. Development of material and temporal characteristics of architecture relative to role those play in landscape. Introduction to issues of accessibility and egress as systems of movement. Structure as serial component that relates to site, construction, topography, climatology, accessibility, and their mutual interaction. Letter grading.

M125B. Digital Cultural Mapping Core Course B: Google Earth, Geographic Information Systems, Hypercities, and Timelines. (4) (Same as Ancient Near East M125B.) Laboratory, three hours; discussion, one hour. Enforced requisite: Ancient Near East 125A. Hands-on laboratory-based investigation of emerging digital mapping technologies, including instruction in Web-based mapping applications, virtual globes, and geographic information systems (GIS). Critique and creation of maps of cultural phenomena, applying skills students learned in Ancient Near East 125A to real-world data sets in humanities and social sciences. By mastering emerging technologies in field of digital cultural mapping, students take part in evaluation and production of sophisticated visual representations of complex data, becoming active participants in development of this new field. How to use suite of GIS and neogeography tools. Fostering of creative approaches to and engagement with mapping technologies: What new questions can be asked and answered using these technologies? How does one reason, argue, and solve real-world problems through digital cultural mapping? Design, development, and implementation of student mapping-based research projects. Part of Digital Cultural Mapping Project supported by W.M. Keck Foundation. P/NP or letter grading.

M125C. Digital Cultural Mapping Core Course C: Summer Research. (4) (Same as Ancient Near East M125C.) Laboratory, three hours; fieldwork, one hour. Enforced requisite: course M125B or Ancient Near East M125B. Participation in collaborative geographic information systems (GIS) research project in humanities or social sciences using skills learned in courses 125A and M125B. Gathering and input of datasets from real-world sources, creating visual representations of data through production of digital maps, and performing analysis of larger dataset to answer specific research questions. Final oral presentation required that details student work and provides critical analysis of source material and technological/methodological issues inherent to type of GIS used for investigation. Part of Digital Cultural Mapping Project supported by W.M. Keck Foundation. Offered in summer only. P/NP or letter grading.

M130. Space and Place. (4) (Same as World Arts and Cultures M130.) Lecture, three hours. Survey of array of spaces and places from cross-cultural or comparative perspective and with performance emphasis, with focus on mutual interaction of human beings and their created environments. Emphasis on common, ordinary, anonymous, or vernacular nonbuilt and built environments, that are built and used by members of small-scale, traditional, and transitional communities around world. P/NP or letter grading.

131. Issues in Contemporary Design. (5) Lecture, three hours; outside study, 12 hours. Limited to Architectural Studies majors. How global design culture today operates as part of set of spatial, economic, political, and social discourses. From development of cities to new formal languages in architecture, consequences of fact that great percentage of our lives is spent in controlled designed environments, including role that research and interdisciplinarity play today in influencing design ideas and processes, as well as how design is influenced by technology and new urban conditions. Letter grading.

132. Domestic Architecture: Critical History. (5) Lecture, three hours; outside study, 12 hours. Limited to Architectural Studies majors. Investigation of relationship between culture and design through medium of domestic architecture, from communal living arrangements of antiquity to functional and automated ideals of modern movement. Exploration of how design of domestic interior has evolved to express and accommodate corresponding developments in lifestyle and taste. Letter grading.

133. Modernism and Metropolis. (5) Lecture, three hours; outside study, 12 hours. Limited to Architectural Studies majors. Introduction to emergence of contemporary metropolis through series of comparative urban explorations that begin in Los Angeles and extend to engage range of cities, including key examples from Asia to South America. Modern project can be seen in myriad forms across globe, so that city and suburb, taken together, exist in complex commingling of aesthetic, political, spatial, economic, technological, and social issues. Letter grading.

141. Technology I: Projections. (5) Laboratory, four hours; outside study, 11 hours. Limited to Architectural Studies majors. Introduction to techniques of spatial representation as they relate to architectural design. How to communicate using two- and three-dimensional drawing and modeling. Analog and digital techniques and opportunity afforded by moving between both. Analog techniques include orthographic and axonometric projection. Digital techniques focus on computer graphics fundamentals, including bit map and vector graphic imaging using Adobe suite and modeling using Rhinoceros. Letter grading.

142. Technology II: Building Materials and Methods. (5) Laboratory, four hours; outside study, 11 hours. Limited to Architectural Studies majors. Introduction to construction systems and materials in relation to design, such as framed, bearing wall, or hybrid systems. Graphic conventions and organization of construction documents. Letter grading.

143. Technology III: Digital Technology. (5) Laboratory, four hours; outside study, 11 hours. Limited to Architectural Studies majors. Overview of three-di-

mensional computer-aided visualization concepts, teaching applications of AutoCAD and Maya and their use relative to process of design and visual communication. Basic representation methods and tools and introduction to additional concepts required to dynamically interact with computer and to explore and understand communicative capacities of different methods of representation. Explanation of bitmap versus vector graphics, typography basics, and color output and integration for print and Web, and introduction to three-dimensional digital modeling and fabrication. Letter grading.

CM153. Introduction to Sustainable Architecture and Community Planning. (4) (Same as Environment M153.) Lecture, three hours. Relationship of built environment to natural environment through whole systems approach, with focus on sustainable design of buildings and planning of communities. Emphasis on energy efficiency, renewable energy, and appropriate use of resources, including materials, water, and land. Concurrently scheduled with course CM247A. Letter grading.

M170. Human Environment: Introduction to Architecture and Urban Planning. (4) (Same as Urban Planning M170.) Lecture, three hours; outside study, nine hours. Kinds of problems that arise in creating and maintaining environment for urban activities, and approaches and methods of architecture and urban planning in helping to cope with such problems. Complexities involved in giving expression to human needs and desires in provision of shelters and movement systems, to possibilities and limitations of technology and building forms, and to issues involved in relating human-made to natural environment. Students encouraged to comprehend major urban issues both as citizens and as potential technical experts. P/NP or letter grading.

199. Directed Research or Senior Project in Architecture and Urban Design. (2 to 4) Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

M201. Theories of Architecture. (4) (Same as Urban Planning M201.) Lecture, three hours. Exploration of conceptual and historical structures that shape current issues in architectural theory. Readings in primary texts serve as framework for understanding nature of speculative inquiry in architectural context. Letter grading.

220. Introduction to Computers. (2) Lecture, 90 minutes; laboratory, 90 minutes; outside study, three hours. Introduction to basic concepts, skills, and theoretical aspects of computer-aided architecture design microcomputer skills. Applications selected are commonly found in professional offices. Two- and three-dimensional representation (i.e., painting, drafting, multimedia, hypermedia, and modeling). Letter grading.

M226A. Introduction to Computer-Aided Architectural Design, Two-Dimensional. (4) (Same as Urban Planning M226A.) Lecture, three hours; laboratory, one hour. Concepts of hardware, software, and networks; paint, draft, multimedia, DTP, and presentation programs; CAD in office environment. Letter grading.

M226B. Introduction to Computer-Aided Architectural Design, Three-Dimensional. (4) (Same as Urban Planning M226B.) Lecture, three hours; laboratory, one hour. Concepts of three-dimensional space, modeling, and virtual reality; file formats; modeling, rendering, and animation programs; video conference. Letter grading.

226C. Computer Visualization. (4) Lecture, three hours. Designed for graduate students. Concept and techniques of computer visualization of artifacts, including realistic rendering and animation. Letter grading.

M227A. Programming Computer Applications in Architecture and Urban Design. (4) (Same as Design I Media Arts M241.) Lecture, three hours; outside study, nine hours. Introductory course in logic of com-

puting through experiments in computer graphics programming. Investigation of both procedural and object-oriented approaches to programming. May be repeated for credit with consent of adviser. S/U or letter grading.

M227B. Introduction to Geometric Modeling. (4) (Same as Design I Media Arts M242.) Lecture, three hours; outside study, nine hours. Requisite: course M227A. Survey of geometric and three-dimensional modeling, with emphasis on implementation of three-dimensional solids constructions and editing operations. Basic representations and operations on shapes and solids. May be repeated for credit with consent of adviser. S/U or letter grading.

M227C. User Interaction Techniques in Design. (4) (Same as Design I Media Arts M243.) Lecture, three hours; outside study, nine hours. Requisite: course M227A or knowledge of C++ programming language. Programming techniques for implementing modern computer-user interfaces, specifically looking at issues relevant to building software tools for computer-aided problem solving in architecture and design. May be repeated for credit with consent of adviser. S/U or letter grading.

227D. Design and Building Models. (4) Lecture, three hours. Review of range of information and knowledge potentially used in design. Knowledge representation, abstractions, and constructs. Logical structure of design information. Development of knowledge used in areas of design, how it can be identified, analyzed, and structured. Letter grading.

CM247A. Introduction to Sustainable Architecture and Community Planning. (4) (Same as Urban Planning M291.) Lecture, three hours. Relationship of built environment to natural environment through whole systems approach, with focus on sustainable design of buildings and planning of communities. Emphasis on energy efficiency, renewable energy, and appropriate use of resources, including materials, water, and land. Concurrently scheduled with course CM153. Letter grading.

M271. Elements of Urban Design. (4) (Same as Urban Planning M292.) Lecture, three hours. Introduction of basic knowledge of elements and methods of urban design. Multidisciplinary approach leading to understanding of political, socioeconomic, and technological framework of urban systems and its dynamic interrelations. S/U or letter grading.

M272. Real Estate Development and Finance. (4) (Same as Urban Planning M272.) Lecture, two hours; workshop, two hours; outside study, eight hours. Requisites: Urban Planning 220A, 220B. Introduction to real estate development process specifically geared to students in planning, architecture, and urban design. Financial decision model, market studies, designs, loan packages, development plan, and feasibility studies. Lectures and projects integrate development process with proposed design solutions that are interactively modified to meet economic feasibility tests. S/U or letter grading.

286. Roman Architecture and Urbanism. (4) Lecture, three hours. Examination of architectural and urban developments during Roman period, from archaic age to late Empire. Built environments of ancient world investigated from various perspectives, with consideration to programming, symbolism, and viewing, as well as to technological, aesthetic, and political factors. S/U or letter grading.

288. Renaissance Architecture and Urbanism. (4) Lecture, three hours. Examination of architectural developments from 15th to 17th century. Primary focus on Italian peninsula, and extending to entire Mediterranean basin. Analysis of individual structures, cities, and landscape designs to reveal changing cultural and theoretical values, as well as specific aesthetic and iconographic content. S/U or letter grading.

289. Special Topics in Architecture and Urban Design. (2 to 4) Lecture, two hours; discussion, two hours. Selected academic topics initiated by students, student teams, or faculty and directed by faculty member. May be repeated for credit. S/U or letter grading.

290. Special Topics in Critical Studies in Architectural Culture. (5) Lecture, three hours; discussion, one hour; outside study, 11 hours. Designed for graduate students. Exploration of how architecture operates in relation to wider cultural, historical, and theoretical issues. May be repeated for maximum of 30 units. Letter grading.

291. Theory of Architectural Programming. (4) Lecture, three hours. Exploration of concepts and methods of architectural programming and its interrelation to design process; planning of design process; various techniques for determination of program contents, basic conditions, resources, and constraints; identification of solution types for given situations. S/U or letter grading.

M293. Politics, Ideology, and Design. (4) (Same as Urban Planning M293.) Lecture, three hours. Exploration of cultural and political context of architecture and planning work. Examination of theory and practice from variety of perspectives applied to set of varied physical environments and to set of current spatialized concepts. Consideration of theoretical propositions that are shaping present urban and architectural debate and concrete case studies where politics and ideology shape design process. Letter grading.

294A-294B. Environmental Psychology. (4-4) Lecture, three hours. Introduction to models, concepts, and theories concerning impact of environment on human behavior, perception, and thought. Review of research results concerning space perception, cognitive mapping, preferences and attitudes toward environment, effects of crowding and stress, personal space and territoriality. S/U or letter grading.

296. Proseminar: Critical Studies in Architectural Culture. (4) Seminar, three hours. Orientation for Ph.D. students to tradition of architectural theory, scholarship, and research and to current research directions and questions, through intensive reading and critical discussion. Letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

401. Advanced Topics Studio. (6) Studio, 12 hours; outside study, six hours. Preparation: satisfactory completion of intermediate-level studios (courses 412, 413, 414) or M.Arch. II student. Students may choose (through lottery) from several different projects focusing on special topics in architectural and urban design to be offered by faculty members. May be repeated for credit. Letter grading.

402. Final Advanced Topics Studio. (6) Studio, 12 hours; outside study, six hours. Preparation: satisfactory completion of intermediate- and advanced-level studios for M.Arch. I students; satisfactory completion of advanced-level studios and fourth-term standing for M.Arch. II students. Students may choose (through lottery) from several different advanced studio projects focusing on special topics in architectural and urban design to be offered by faculty members. Exit document (analytic paper with graphic component that critically examines final student design work) required at completion of course. Letter grading.

403A-403B-403C. Research Studios. (2-2-6) For courses 403A, 403B: seminar, three hours; outside study, three hours; for course 403C: studio, 12 hours; outside study, six hours. Preparation: satisfactory completion of intermediate-level studios (courses 412, 413, 414, 415) or M.Arch. II student. Course 403A is requisite to 403B, which is requisite to 403C. In-depth research phase (courses 403A, 403B) and advanced studio project (course 403C), with focus on number of different special topics in architecture and urban design. In Progress (403A, 403B) and letter (403C) grading.

M404. Joint Planning/Architecture Studio. (4) (Same as Urban Planning M404.) Lecture, one hour; discussion, one hour; studio, four hours. Opportunity to work on joint planning/architecture project for client. Outside speakers; field trips. Examples of past proj-

ects include Third Street Housing, Santa Monica; New American House for nontraditional households; Pico-Aliso Housing, Boyle Heights; working with resident leaders at Los Angeles City public housing developments. S/U or letter grading.

411. Introductory Design Studio. (6) Studio, 12 hours; outside study, six hours. Introduction to sketching, drawing, perspectives, CAD. Architectural composition is initially studied in terms of its separate elements. After each is studied by means of manipulative exercise that allows for experimentation of its intrinsic possibilities, students undertake series of closely controlled exercises dealing with combining elements and then design small buildings. Letter grading.

412. Building Design Studio. (6) Studio, 12 hours; outside study, six hours. Requisite: course 411. Concentration on basic skills, leading to projects exploring architectural program in relation to design process and, particularly, implications of program on architectural forms and concepts. In second phase, introduction of structural elements to fulfill program requirements and to support and further develop intended forms and concepts. Letter grading.

413. Building Design with Landscape Studio. (6) Studio, 12 hours; outside study, six hours. Requisite: course 412. Introduction to theoretical and technical issues such as site planning, urban design, landscape design, building typology. Building design and site planning in relation to water, landforms, and plants in natural light, heat, and ventilation. Letter grading.

414. Major Building Design Studio. (6) Studio, 12 hours; outside study, six hours. Requisite: course 413. Designed for second-year graduate students. Introduction to issues such as programming and program manipulation, site planning, urban design, and integration of technical systems and architectural expression. Emphasis either on treatment in breadth of large-scale projects or exploration in depth and detail of smaller-scale projects. Students learn to integrate structure and environmental control and to present their ideas in graphic or model form. Letter grading.

415. Comprehensive Studio. (6) Studio, 12 hours; outside study, six hours. Requisite: course 414. Culmination of core sequence (courses 411 through 414), with focus on development phase of project. Technical concerns such as lighting, material innovation, sustainability, construction documents, and building envelopes to be considered critical to generation of architectural form, integrated in design of single building project. Letter grading.

431. Structures I. (4) Lecture, three hours. Preparation: basic algebra, geometry, trigonometry. Introduction to structural behavior and structural statics. Operations with forces and factors, both algebraically and graphically. Equilibrium of force systems; polygon of forces and funicular polygon. Internal actions; axial force and bending moment. Reactions, stability, and statical determinacy. Determinate frames. Plane trusses; analysis and design. S/U or letter grading.

432. Structures II. (4) Lecture, three hours. Requisite: course 431. Mechanics of structures and structural elements. Elastic materials: stress, strain, and stress-strain relations. Theory of bending: curvature, stress and strain distributions, centroid, moments of inertia, resisting and plastic moments. Design of beams for bending, shear, and deflections. Torsion members. Instability and design of columns. Design for combined bending and compression. Tensile structures; cables, pneumatic structures. Slabs and plates; shells and folded plates. S/U or letter grading.

433. Structures III. (4) Lecture, three hours. Requisite: course 432. Introduction to statically indeterminate analysis. Structural materials and loads. Wind loads: distribution with height, design for comfort, structure behavior under lateral loads. Steel construction and concepts for high-rise structures. Structural case studies in timber and steel. Introduction to earthquakes: seismology, magnitude, intensity, history. Seismic instrumentation. Case studies of recent earthquakes and damage. Earthquake design concepts and seismic code requirements. S/U or letter grading.

436. Introduction to Building Construction. (2) Laboratory, two hours; outside study, four hours. Introduction to construction techniques. Study of physical principles and materials for making architecture through series of exercises and field trips. Letter grading.

437. Building Construction. (4) Laboratory, four hours; outside study, eight hours. Principles of structure and enclosure, with focus on production and materials research. Exploration of building elements for formal and functional properties; in addition, design development of project in previous studio may be developed in detail with integration of range of technical systems. Letter grading.

441. Environmental Control Systems. (4) Lecture, four hours. Design of mechanical systems necessary for functioning of large buildings: air handling, fire and life safety, plumbing, vertical and horizontal circulation, communication and electrical power distribution, analysis of interaction of these systems and their integrated effects on architectural form of building. S/U or letter grading.

442. Building Climatology. (4) Lecture, four hours. Preparation: basic physics. Design of buildings that specifically respond to local climate; utilization of natural energies, human thermal comfort; sun motion and sun control devices; use of plant materials and landform to modify microclimate. S/U or letter grading.

461. Architectural Practice. (4) Lecture, three hours. Historical development of profession; role of architect in contemporary society, current forms of practice and emerging trends. Contractual relationships, ethical responsibility, office management and promotion. Case studies of practical process. S/U or letter grading.

496. Special Projects in Architecture. (2 to 8) Tutorial, to be arranged. Projects initiated either by individual students or student teams and directed by faculty member. May be repeated for credit. S/U or letter grading.

497. Special Projects in Urban Design. (2 to 8) Tutorial, to be arranged. Projects initiated either by individual students or student teams and directed by faculty member. May be repeated for credit. S/U or letter grading.

498. Comprehensive Examination Seminar. (4) Seminar, three hours; outside study, nine hours. Seminar intended to begin process of developing independent proposal with related research and documentation that moves toward production of final document or book for each project. S/U grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. Directed Individual Research and Study in Architecture and Urban Design. (2 to 8) Tutorial, to be arranged. May be repeated for credit. S/U grading.

597. Preparation for Comprehensive Examination or Ph.D. Qualifying Examinations. (2 to 8) Tutorial, to be arranged. May be repeated for credit. S/U grading.

598. Preparation in Architecture/Urban Design for Master's Thesis. (2 to 8) Tutorial, to be arranged. May be repeated for credit. S/U grading.

599. Ph.D. Dissertation Research in Architecture. (2 to 8) Tutorial, to be arranged. Limited to doctoral students. May be repeated for credit. S/U grading.

ART

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Professors

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Barbara Drucker, M.F.A.
Russell Ferguson, M.A.
Andrea Fraser
Roger R. Herman, M.F.A.
Mary Kelly, M.A.
Barbara Kruger
Catherine S. Opie, M.F.A.
Hirsch Perlman, B.A.
Lari G. Pittman, M.F.A.
Charles R. Ray, M.F.A.
Adrian A. Saxe, B.F.A.
James Welling, M.F.A.
Patricia A. Wickman, M.F.A.

Professors Emeriti

Samuel Amato, B.F.A.
Raymond B. Brown, M.A.
Christopher L. Burden, M.F.A.
Elliot J. Elgart, M.F.A.
Paul D. McCarthy, M.F.A.
Nancy J. Rubins, M.F.A.

Lecturer

Don D. Suggs, M.F.A.

Visiting Assistant Professor

Rodney T. McMillan, M.F.A.

Scope and Objectives

The Department of Art offers professional art training that emphasizes experimentation and encourages students to draw from many disciplines in their creative process. The department provides a strong background in theory and criticism to support contemporary studio practice. Bachelor of Arts degree coursework and Master of Fine Arts degree specializations include painting and drawing, new genres, photography, sculpture, and ceramics. An interdisciplinary studio option is offered within the M.F.A. program. All programs have access to the art resources at UCLA and in the Los Angeles community.

The Department of Art reserves the right to hold for exhibition purposes examples of any work done in classes and to retain for the permanent collection of its galleries such examples as may be selected.

Additionally, the Department of Art reserves the right to use documentation and reproductions of student art work from studio courses, student exhibitions, and other records of creative work in publications including, but not limited to, the undergraduate and graduate brochures and publications, department and school websites, and presentations and events related to student recruitment and outreach.

Undergraduate Study

The Art major is a designated capstone major. As part of the upper division advanced studio requirements, all undergraduate students are required to complete a senior studio course that emphasizes analysis and criticism of individual creative work and ideas. Students develop and present a body of creative work in which they exhibit familiarity with and competence in a range of techniques and media, and a level of proficiency in utilizing particular media appropriate to advanced-level studio projects. Graduates are expected to demonstrate familiarity with historical precedents for and issues in contemporary art, to understand terms and concepts relevant to contemporary art discourse, and to have the ability to effectively articulate analysis of works of art to participate in a studio critique.

Art B.A.

Capstone Major

Preparation for the Major

Required: Art 1A, 1B, 11A, 11B, 11D, 11E, 31A, 31B, 31C, and one course from Art History 50, 51, 54, 55A, 55B, 56A, 56B, 57.

The Major

Required: A minimum of nine upper division courses, including Art 100 or 132 or one course from an approved list of upper division nonmajor courses, six courses from at least four of the following studio areas: 130, 133, 137, 140, 145, 147, 148, one course from Art History M101A through C180C, one capstone senior studio course (Art 150), and 10 units of art electives.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Art offers the Master of Arts (M.A.) and Master of Fine Arts (M.F.A.) degrees in Art.

Art

Lower Division Courses

1A. Drawing. (4) Studio, eight hours; five hours arranged. Course in basic drawing skills intended as preparation for work in variety of media. P/NP or letter grading.

1B. Sculpture. (4) Studio, eight hours; five hours arranged. Introduction to concepts and forms of contemporary sculpture to become familiar with tools and material to enable students to visually manifest their individual ideas. Presentation of work of contemporary artists. P/NP or letter grading.

11A. Painting. (4) Studio, eight hours; five hours arranged. Basics of painting: introduction to technical procedures, tools, and materials. Discussion of fundamental conceptual and formal concerns. P/NP or letter grading.

11B. Photography. (4) Studio, eight hours; five hours arranged. Fundamentals in technique, with emphasis on individual projects. Varied approaches, processes, and applications of photographic medium within context of art, supported by studies in theory, aesthetics, and history of photography. P/NP or letter grading.

11C. Printmaking. (4) Studio, eight hours; five hours arranged. Introductory survey of various technical and conceptual concerns in variety of printmaking media as preparation for more focused study in particular media at upper division level. P/NP or letter grading.

11D. New Genres. (4) Studio, eight hours; five hours arranged. Introduction to projects in installation, performance, video, film, intermedia, and other nontraditional media and processes. P/NP or letter grading.

11E. Ceramics. (4) Studio, eight hours; five hours arranged. Introduction to ceramic materials and processes, with emphasis on personal and cultural expression in ceramic media. Discussion of ceramics in contemporary artistic practice and social history of ceramic art. Letter grading.

31A. Modernism. (5) Lecture, three hours; discussion, one hour; field trips, three hours. Impact of modernist thought on art and society from mid-19th through early-20th centuries. Exploration of origins, development, theory, and practice of modernism in Europe and U.S. Letter grading.

31B. Modernism. (5) Lecture, three hours; discussion, one hour; field trips, three hours. Requisite for Art majors: course 31A. Continuation of impact of modernist ideas through mid-20th century, with focus primarily on work made from 1920s to 1960s. Letter grading.

31C. Modernism. (5) Lecture, three hours; discussion, one hour; field trips, three hours. Requisites for Art majors: courses 31A, 31B. Continuation of impact of modernist ideas through latter part of 20th century, covering shift from modernist to postmodernist practices and theories, with focus on work made from 1960s to present. Letter grading.

70. Summer Art Institute: Special Topics in Studio. (3) Studio/lecture/field trips, 45 hours. Limited to high school students in Summer Art Institute. Two-week intensive in studio art covering range of media and contemporary art practices and combination of focused studio work, lecture/presentations, field trips, critiques, and final exhibition of student work. Offered only as part of Summer Institute. May be repeated once for credit. P/NP grading.

Upper Division Courses

100. Issues in Contemporary Art. (5) Lecture, three hours; discussion, one hour; screenings/research, 11 hours. Requisites: courses 31A, 31B, 31C. Selected topics in theoretical, critical, aesthetic, and historical studies and their relevance to practicing artists. May be repeated for maximum of 20 units. Letter grading.

130. Advanced Drawing. (5) Studio, eight hours; seven hours arranged. Requisite: course 1A. Drawing as both independent expressive medium and as means of visualization. May be repeated for maximum of 20 units. Letter grading.

132. Survey of Critical Thought. (5) Lecture, three hours; discussion, one hour; screenings/research, 11 hours. Requisites: courses 31A, 31B, 31C. Overview of premodern, modern, and postmodern theory as reflected in critical writing and artistic practice, with emphasis on 1940s to present. Specific topics may vary. May be repeated for maximum of 20 units. Letter grading.

133. Advanced Painting. (5) Studio, eight hours; seven hours arranged. Requisite: course 11A. Varied media and subjects to further develop students' technical and expressive means to implement their ideas. May be repeated for maximum of 20 units. Letter grading.

137. Advanced New Genres. (5) Studio, eight hours; seven hours arranged. Requisite: course 11D. Emphasis to be selected by faculty members from one or more of following media: installation, performance, video, film, other nontraditional media and processes. May be repeated for maximum of 20 units. Letter grading.

140. Advanced Printmaking. (5) Studio, eight hours; seven hours arranged. Requisite: course 11C. Selected studies in fine printmaking, historical and contemporary: woodcut, etching and engraving, lithography, silk screen, mixed media. May be repeated for maximum of 20 units. Letter grading.

145. Advanced Sculpture. (5) Studio, eight hours; seven hours arranged. Requisite: course 1B. Selected studies in sculpture, historical and contemporary: modeling, carving, casting, welding, and other media; forms in space, including installations and nonstudio pieces. May be repeated for maximum of 20 units. Letter grading.

147. Advanced Photography. (5) Studio, eight hours; seven hours arranged. Requisite: course 11B. Selected projects in photography and related media, concentrating on development of individual students' artwork. Studio emphasis with special topics in theory and critical analysis. May be repeated for maximum of 20 units. Letter grading.

148. Advanced Ceramics. (5) Studio, eight hours; seven hours arranged. Requisite: course 11E. Selected studies in ceramics, with emphasis on individualized creative experimentation with materials and techniques introduced in course. Methods and processes to be selected from range of possibilities, including handforming and modeling, preparation and use of molds, slipcasting, and use of potter's wheel. May be repeated for maximum of 20 units. Letter grading.

150. Senior Studio. (5) Studio, eight hours; seven hours arranged. Limited to seniors. Advanced studio projects, with emphasis on analysis and criticism of individual creative work and ideas. Letter grading.

170. Special Topics in Studio. (2 to 4) Studio/museum visits, four to eight hours; two to four hours arranged. Current themes in art theory, practice, and criticism, offering students opportunity to explore these issues in studio context through critique of work and discussion of recommended readings. May be repeated for maximum of 16 units. P/NP or letter grading.

C180. Seminar: Art. (4) Seminar, three hours. Limited to junior/senior Art majors. Advanced topics in critical theory and study of contemporary art, with emphasis on individuals, issues, and methodologies. Possible areas of study from structuralism, deconstruction, feminist and psychoanalytic theory, commodification, and censorship. May be repeated for credit. Concurrently scheduled with course C280. Letter grading.

C181. Exhibition and System. (4) Seminar, four hours. Preparation: at least one course from 100 through 150. Examination of temporary exhibition and its associated field of publications as intertextual system of meaning, beginning with individual works and proceeding to on-site analysis of current exhibitions. Concurrently scheduled with course C281. Letter grading.

C182. Exhibitions and Public Programs. (4) Seminar, four hours. Preparation: at least one course from 100 through 150. Introduction to principles of program planning and community development in relation to visual arts and work of art museums. Concurrently scheduled with course C282. Letter grading.

C183. Special Topics in Art. (2 or 4) Seminar, six hours (2-unit course) or 12 hours (4-unit course). Preparation: at least one course from 100 through 150. Selected topics in art explored through variety of approaches that may include projects, readings, discussion, research papers, and oral presentations. Topics announced in advance. May be repeated for credit. Concurrently scheduled with course C283. Letter grading.

M184. Chicana Art and Artists. (4) (Same as Chicana and Chicano Studies M175 and World Arts and Cultures M128.) Lecture, four hours. Introduction to Chi-

cana art and artists. Examination of Chicana aesthetic. Chicana artists have developed unique experience and identity as artists and Chicanas. Letter grading.

M185. Whose Monument Where: Course on Public Art. (4) (Same as Chicana and Chicano Studies M185 and World Arts and Cultures M126.) Lecture, four hours. Recommended corequisite: course M186A, M186B, or M186C. Examination of public monuments in U.S. as basis for cultural insight and critique of American values from perspective of artist. Use of urban Los Angeles as textbook in urban space issues such as who is "public," what is "public space" at end of 20th century, what defines neighborhoods, and do different ethnic populations use public space differently. P/NP or letter grading.

M186A. Beyond Mexican Mural: Beginning Muralism and Community Development. (4) (Same as Chicana and Chicano Studies M186A and World Arts and Cultures M125A.) Studio/lecture, four hours. Corequisite: course M186AL. Investigation of muralism as method of community education, development, and empowerment. Exploration of issues through development of large-scale collaborative digitally created image and/or painting for placement in community. Students research, design, and work with community participants. P/NP or letter grading.

M186AL-M186BL-M186CL. Beyond Mexican Mural: Muralism and Community Laboratory. (4-4-2) (Same as Chicana and Chicano Studies M186AL-M186BL-M186CL and World Arts and Cultures M125AL-M125BL-M125CL.) Course M186AL is requisite to M186BL, which is requisite to M186CL. Mural and Digital Laboratory is art studio housed at Social and Public Art Resource Center in Venice, CA, where students work in community-based setting. Open to students during scheduled hours with laboratory tech support, it offers instruction as students independently and in collaborative teams research, design, and produce large-scale painted and digitally generated murals to be placed in community setting. P/NP or letter grading. **M186AL.** Beginning. Laboratory, four hours. Corequisite: course M186A; **M186BL.** Intermediate. Laboratory, four hours. Requisites: courses M186A, M186AL. Corequisite: course M186B; **M186CL.** Advanced. Laboratory, two hours. Corequisite: course M186C.

M186B. Beyond Mexican Mural: Intermediate Muralism and Community Development. (4) (Same as Chicana and Chicano Studies M186B and World Arts and Cultures M125B.) Studio/lecture, four hours. Requisites: courses M186A, M186AL. Corequisite: course M186BL. Continuation of investigation of muralism as method of community education, development, and empowerment. Exploration of issues through development of large-scale collaborative digitally created image and/or painting for placement in community. Students research, design, and work with community participants. Continuation of project through states of production to full scale and community approval. P/NP or letter grading.

M186C. Beyond Mexican Mural: Advanced Muralism and Community Development. (4) (Same as Chicana and Chicano Studies M186C and World Arts and Cultures M125C.) Studio/lecture, six hours. Requisites: courses M186B, M186BL. Corequisite: course M186CL. Continuation of investigation of muralism as method of community education, development, and empowerment. Exploration of issues through development of large-scale collaborative digitally created image and/or painting for placement in community. Students research, design, and work with community participants. Continuation of project through installation, documentation, and dedication, with work on more advanced independent projects. P/NP or letter grading.

C187. Contemporary Art Collections in Los Angeles. (2) Seminar, three hours; outside study, three hours. Limited to junior/senior Art majors. Exploration of critical issues regarding concept of collections and collecting. Visits to institutions and collections and discussion of vision, goals, and scope of collections, as well as individual works. Concurrently scheduled with course C287. Letter grading.

190. Studio/Research Colloquia in Art. (1) Seminar, three hours. Corequisite: course 197 or 198. Limited to juniors/seniors. Designed to bring together students undertaking supervised tutorial studio projects or research in seminar setting with one or more faculty members to discuss their own work or related work in discipline. Led by one supervising faculty member. May be repeated for maximum of 4 units. P/NP grading.

193. Journal Club Seminars: Current Topics in Art. (1) Seminar, three hours. Limited to junior/senior Art majors. Discussion of selected current exhibitions, visiting artist lectures, screenings, and readings in field. May be repeated for credit. P/NP grading.

195. Community Internships in Art. (2) Tutorial, six hours. Limited to juniors/seniors. Internship in supervised setting in community agency or business related to art. Students meet on regular basis with instructor and provide periodic reports of their experience. Only 4 units may be applied toward upper division art elective major requirement. May be repeated for maximum of 8 units. Individual contract with supervising faculty member required. P/NP grading.

197. Individual Studies in Art. (2 to 4) Tutorial, to be arranged. Preparation: 3.0 grade-point average in major. Corequisite: course 190. Limited to junior/senior Art majors. Individual intensive studio project or study, with scheduled meetings to be arranged between faculty member and student. Tangible evidence of project or mastery of subject matter required. May be repeated for maximum of 8 units. Individual contract required. Letter grading.

198. Honors Research in Art. (2 to 4) Tutorial, to be arranged. Preparation: 3.0 grade-point average overall, 3.5 grade-point average in major. Corequisite: course 190. Limited to junior/senior Art majors. Development and completion of comprehensive research or studio project under direct supervision of faculty member. May be repeated for maximum of 8 units. Individual contract required. Letter grading.

Graduate Courses

271. Graduate Painting. (2 to 8) Studio, eight hours. Study in painting and associated media. May be repeated for credit with consent of adviser. Letter grading.

272. Graduate Printmaking. (2 to 8) Studio, eight hours. Studies in traditional and experimental printmaking. Selected studies in intaglio, lithograph, woodcut, silk screen, photo printmaking, and mixed media. May be repeated for credit with consent of adviser. Letter grading.

273. Graduate Sculpture. (2 to 8) Studio, eight hours. Studies in sculpture with specific attention to ongoing nature, specificity, and approach to each student's particular discipline. Individual studio visits and consultation. May be repeated for credit with consent of adviser. Letter grading.

274. Graduate Photography. (2 to 8) Studio, eight hours. Studies concentrating on development of individual students' artwork. Studio emphasis with adjacent studies in theoretical and critical analysis. Specific attention to original, expressive, social, and humanistic values of art. May be repeated for credit with consent of adviser. Letter grading.

275. Graduate New Genres. (2 to 8) Studio, eight hours. Studies in alternative media, including installation, performance, video, film, and other nontraditional media and processes. May be repeated for credit with consent of adviser. Letter grading.

276. Graduate Group Critique. (4) Discussion, four hours; tutorial, to be arranged. Group critique/discussion of students' research. Additional tutorial meetings by arrangement with instructor. May be repeated for credit. Letter grading.

277. Graduate Ceramics. (2 to 8) Studio, eight hours. Studies in ceramics and art with investigation of traditional and experimental processes and intellectual approaches to art practice utilizing ceramic media. Emphasis on development of significant body of original work reflecting student's expressive and theoretical concerns. May be repeated for credit. Letter grading.

278. Interdisciplinary Studio. (2 to 8) Studio, eight hours. Tutorial focused on directed research, studio visits, and group discussions of recommended readings. May be repeated for credit. S/U or letter grading.

C280. Seminar: Art. (4) Seminar, three hours. Advanced topics in critical theory and study of contemporary art, with emphasis on individuals, issues, and methodologies. Possible areas of study from structuralism, deconstruction, feminist and psychoanalytic theory, commodification, and censorship. May be repeated for credit. Concurrently scheduled with course C180. Letter grading.

C281. Exhibition and System. (4) Seminar, four hours. Examination of temporary exhibition and its associated field of publications as intertextual system of meaning, beginning with individual works and proceeding to on-site analysis of current exhibitions. May be repeated for credit. Concurrently scheduled with course C181. Letter grading.

C282. Exhibitions and Public Programs. (4) Seminar, four hours. Introduction to principles of program planning and community development in relation to visual arts and work of art museums. May be repeated for credit. Concurrently scheduled with course C182. Letter grading.

C283. Special Topics in Art. (2 or 4) Seminar, six hours (2-unit course) or 12 hours (4-unit course). Selected topics in art explored through variety of approaches that may include projects, readings, discussion, research papers, and oral presentations. Topics announced in advance. May be repeated for credit. Concurrently scheduled with course C183. Letter grading.

C287. Contemporary Art Collections in Los Angeles. (2) Seminar, three hours; outside study, three hours. Exploration of critical issues regarding concept of collections and collecting. Visits to institutions and collections and discussion of vision, goals, and scope of collections, as well as individual works. Concurrently scheduled with course C187. Letter grading.

375. Teaching Apprentice Practicum (1 to 4). Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

400A-400B. Visiting Artists Studio. (2-2) Studio, six hours. Designed for M.F.A. students. Introduction to visiting artists in their area of study, with focus on one-on-one critiques with wide range of practitioners. In Progress (400A) and S/U (400B) grading.

400C. Visiting Artists Studio. (4) Studio, 12 hours. Limited to graduate art students. Introduction to visiting artists in their area of study, with focus on one-on-one critiques with wide range of practitioners. S/U grading.

495. Teaching Assistant Training Practicum. (2) Seminar, three hours; outside study, three hours. Forum for first-year teaching assistants for discussion and exploration of teaching pedagogy and classroom mechanics. Problems and practices of teaching art at college level, as well as role of teaching assistants within department. Designed to help new teaching assistants develop teaching skills and to orient them to department and University policies and resources. May not be applied toward degree requirements. S/U grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. Directed Individual Study or Research. (2 to 8) Tutorial, to be arranged. May be repeated for credit with consent of adviser. S/U or letter grading.

597. Preparation for Master's Comprehensive Examination. (2 to 12) Tutorial, to be arranged. May not be applied toward M.A. or M.F.A. course requirements. May be repeated. S/U grading.

ART HISTORY

College of Letters and Science

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Burglind Jungmann, Ph.D.
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Cecelia F. Klein, Ph.D.
Miwon Kwon, Ph.D.
Donald F. McCallum, Ph.D.
David A. Scott, Ph.D.
Debra L. Silverman, Ph.D. (*Presidential Professor of Modern European History*)
Dell Upton, Ph.D.
Lothar von Falkenhausen, Ph.D.
Joanna C. Woods-Marsden, Ph.D.

Professors Emeriti

David M. Kunzle, Ph.D.
Carlo Pedretti, M.A. (*Armand Hammer Professor Emeritus of Leonardo Studies*)
Donald A. Preziosi, Ph.D.
Anthony Vidler, Dipl.Arch.

Associate Professors

George T. Baker, Ph.D.
Charlene Villaseñor Black, Ph.D.
Hui-Shu Lee, Ph.D.
Saloni Mathur, Ph.D.
Steven D. Nelson, Ph.D.

Senior Lecturer S.O.E

Jean S. Weisz, Ph.D., *Emerita*

Adjunct Professor

John M.D. Pohl, Ph.D.

Scope and Objectives

The department offers programs leading to the Bachelor of Arts, Master of Arts, and Ph.D. degrees. It endorses an interdisciplinary and intercultural approach to art history of all periods and places. By thinking across current categories and boundaries and even critically interrogating art history itself, students are encouraged to question the canon, rethink the relationship between margins and centers, and practice a socially and politically responsible art history.

The rich and varied art resources available at UCLA and throughout Southern California offer students extraordinary opportunities to supplement the formal curriculum.

Undergraduate Study

Art History B.A.

Preparation for the Major

Required: Two courses from Art History 50, 51, 54, 57 and two courses from 55A, 55B, 56A, 56B. It is strongly recommended that these courses be taken prior to enrollment in upper division courses.

Transfer Students

Transfer applicants to the Art History major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: two art history courses in ancient, Renaissance and baroque, medieval, or modern art and two courses in African, Asian, oceanic, Native American, or pre-Columbian art.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Eleven upper division art history courses as follows:

A total of six courses (24 units) from the following 12 areas are required, distributed as follows: one course from three different areas in Group A (three courses total) and one course from three different areas in Group B (three courses total):

Group A: (1) M101A, M101B, M102A through M102E, (2) M102F through M102K, (3) 105A through 105F, M173, (4) 106A through 106D, 108A, 108B, (5) 108C, C109A through 109D, (6) 110A through 110G, C147, C149A, C149B, C150A through 150D, C171A, C171B, C171C, M172, C180A, C180B, (7) 110G, C110H, C112A through CM112F, 117E

Group B: (8) 104A, 104B, C104C, (9) 114A, 114D, 114F, C115A, C180C, (10) 114C, 114E, C115B through C115F, C140A through C140D, (11) C117A through C117D, 118D, 118E, (12) 118A through 118E, C119C, C119D, 119E

Five art history electives selected from courses 100 through C180C are required; course 197 may also be included.

Two additional terms of a foreign language are also required, which are in addition to the College foreign language requirement. For example, if French was used to satisfy the College foreign language requirement, two terms of either advanced French or any level of a second language must be taken to satisfy the foreign language requirement for the major.

Art History majors should be aware that the upper division course requirements in the major (44 units) do not meet the upper division requirement of 60 units for graduation. Additional upper division units must be taken to reach the 60-unit total.

It is recommended that students have each term's program approved by the departmental adviser.

Honors Program

The honors program is designed for Art History majors who are interested in carrying out an independent research project that culminates in a departmental honors thesis of approximately 30 pages. The program gives qualified students the opportunity to work closely with individual professors on an in-depth supervised research and writing project.

All junior and senior Art History majors who have completed a minimum of four upper division art history courses with a departmental grade-point average of 3.5 or better and an overall GPA of 3.0 or better are eligible to apply. Consult the art history undergraduate counselor one term prior to beginning the honors program.

To qualify for graduation with honors, students must (1) complete all requirements for the major, (2) have a cumulative grade-point average of 3.5 or better in upper division courses in the department and an overall GPA of 3.0 or better, and (3) complete Art History 198A and 198B with grades of A– or better.

To qualify for graduation with highest honors, students must (1) complete all requirements for the major, (2) have a cumulative GPA of 3.85 or better in upper division courses in the department and an overall GPA of 3.65 or better, and (3) complete courses 198A and 198B with grades of A.

Art History Minor

The Art History minor is designed for students who wish to augment their major with a series of courses that analyze the history, theory, and criticism of diverse visual traditions in world culture. On the lower division level, the minor exposes students to overviews of these traditions in broad time periods from ancient to modern, from the regional to the global, as well as to courses that trace the historical significance of art in the context of specific thematic and media concerns. Upper division courses offer more specialized content that explores crucial episodes or areas with more intense and rigorous theoretical and methodological strategies.

To enter the minor students must be in good academic standing with an overall grade-point average of 2.0 or better, have completed 45 units, and file a petition in 100 Dodd Hall. Students are advised to declare the minor early and meet with the student affairs officer (310-825-3992) to plan a coherent program.

Required Lower Division Courses (15 units): Three courses selected from Art History 50, 51, 54, 55A, 55B, 56A, 56B, 57.

Required Upper Division Courses (20 units): Five art history courses, with at least two from each group:

Group A: (1) M101A, M101B, M102A through M102E, (2) M102F through M102K, (3) 105A through 105F, (4) 106A through 106D, 108A, 108B, (5) 108C, C109A through 109D, (6) 110A through C110H, C150A through 150D, (7) C112A through CM112E

Group B: (8) 104A, 104B, C104C, (9) 114A, 114D, 114F, C115A, (10) 114C, 114E, C115B through C115F, C140A through C140D, (11) C117A through C117D, 118E, (12) 118A, 118C, C119A, C119B

Art History 127 (4 units) may be taken as one of the five upper division courses required for the minor. No more than one course may be applied toward both this minor and a major or minor in another department or program. By petition, one upper division course with substantial art historical content and methodology applied toward the students' majors may also be applied toward this minor.

One course may be taken on a Passed/Not Passed basis; each of the other minor courses must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Museum Studies Minor

The Museum Studies minor introduces undergraduate students to the history, theory, and practice of museums and museology through a group of linked and related courses from various disciplines in the College of Letters and Science and School of the Arts and Architecture. The program exposes students to museum studies as historically and currently practiced in the visual arts, in anthropology and ethnography, and in history and cultural studies more broadly. The minor complements and in part may serve as an introduction to the M.A. concentration in museum studies.

To enter the minor students must be in good academic standing (minimum 3.0 cumulative grade-point average), have completed 45 units at UCLA, and file a petition with the program adviser, 100 Dodd Hall, (310) 206-6905.

Required Lower Division Courses (8 units): Anthropology 9 or 33 and one course from Art History 50 through 57, with grades of B or better.

Required Upper Division Courses (28 units): Art History C103A, C103B, World Arts and Cultures 143A, 143B, and three elective courses selected from Art History 100, C103C, World Arts and Cultures 143C, and a wide range of other courses from various departments and programs, with approval of the program director. Courses from other departments and programs may be applied as electives on an individual case basis only.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major or minor requirements in another department or program, and at least 16 units applied toward the minor must be taken in residence at UCLA. Transfer credit for any of the above is subject to departmental approval; consult the departmental adviser before enrolling in any courses for the minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful

completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Art History offers Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.) degrees in Art History.

Art History

Lower Division Courses

50. Ancient Art. (5) Lecture, three hours; quiz, one hour; museum field trips. Prehistoric, Egyptian, Mesopotamian, Aegean, Greek, Hellenistic, and Roman art and architecture. P/NP or letter grading.

51. Medieval Art. (5) Lecture, three hours; quiz, two hours. Early Christian, Byzantine, Islamic, Carolingian, Ottoman, Romanesque, and Gothic art and architecture. P/NP or letter grading.

54. Modern Art. (5) Lecture, three hours; discussion, one hour; museum field trips. History of modern art from 1860s to 1960s, from Manet and impressionists to pop art and minimalism. Study of origins and social functions, as well as aesthetic innovations and philosophical dilemmas of modernism. P/NP or letter grading.

55A. Introduction to Arts of Africa. (5) Lecture, three hours; discussion, one hour; museum field trips. Introduction to arts and architecture of Africa. Examination of social and historical contexts of their production. Introduction to body of information within framework of conceptual problem through series of case studies. P/NP or letter grading.

55B. Introduction to Pre-Columbian Art. (5) Lecture, three hours; discussion, one hour; museum field trips. Survey of sequence of cultures that developed in area between (and including) Mexico and Peru from circa 1000 B.C. to Conquest. P/NP or letter grading.

56A. Art of India and Southeast Asia. (5) Lecture, three hours; discussion, one hour; museum field trips. Discussion of selection of monuments and objects from Indian subcontinent and Southeast Asia using key historical, cultural, and religious concepts. Analysis of each monument or object in detail, with their relationships compared and contrasted. P/NP or letter grading.

56B. Chinese Art. (5) Lecture, three hours; discussion, one hour; museum field trips. General introduction to Chinese art, covering all major periods from Neolithic to modern age. Presentation of monuments as well as artifacts in variety of media in their social and historical contexts. P/NP or letter grading.

57. Renaissance and Baroque Art and Ideology. (5) Lecture, three hours; discussion, one hour. Survey of Renaissance and baroque art and ideology to introduce students to basic tools of stylistic and iconographical analysis. Coverage of historical development of European art and architecture over period of almost 500 years and exploration of ways in which those in religious and secular power used images to promote their particular ideologies. P/NP or letter grading.

88A-88Z. Lower Division Seminars. (4 each) Seminar, three hours. Limited to freshmen. Variable topics; consult *Schedule of Classes* or department for topics to be offered in specific term. P/NP or letter grading:

88A. Buddha's Life and Teachings in Art, Texts, and Worship. (4) Seminar, three hours. Limited to freshmen. Development of Buddhist art in India through Buddha's teachings, expressed in art, architecture, texts, and ritual. Re-creation of Buddha's life by analyzing art and reading Buddhist texts of his life. P/NP or letter grading.

Upper Division Courses

100. Art Historical Theories and Methodologies. (4) Seminar, three hours. Requisites: three courses from 50 through 57. Critical examination of history of discipline of art history, with studies of various theoretical, critical, and methodological approaches to visual arts. Letter grading.

M101A. Art and Architecture of Ancient Egypt, Predynastic Period to New Kingdom. (4) (Formerly numbered 101A.) (Same as Ancient Near East CM101A.) Lecture, three hours. Study of architecture, sculpture, painting, and minor arts during Predynastic period and Old Kingdom. May be repeated for credit with consent of instructor. P/NP or letter grading.

M101B. Art and Architecture of Ancient Egypt, New Kingdom to Greco-Roman Period. (4) (Formerly numbered 101B.) (Same as Ancient Near East CM101B.) Lecture, three hours. Study of architecture, sculpture, painting, and minor arts from New Kingdom to Greco-Roman period. P/NP or letter grading.

M102A. Minoan Art and Archaeology. (4) (Same as Classics M153A.) Lecture, three hours. Requisite: course 50 or Classics 10 or 51A. Study of development of art and architecture in Minoan Crete from circa 3000 to 1000 B.C. P/NP or letter grading.

M102B. Mycenaean Art and Archaeology. (4) (Same as Classics M153B.) Lecture, three hours. Requisite: course 50 or Classics 10 or 51A. Study of development of art and architecture in Mycenaean Greece from circa 2000 to 1000 B.C. P/NP or letter grading.

M102C. Archaic Greek Art and Archaeology. (4) (Same as Classics M153C.) Lecture, three hours. Requisite: course 50 or Classics 10 or 51A. Study of development of art and architecture of Greek world from approximately 800 through 490 B.C. P/NP or letter grading.

M102D. Classical Greek Art and Archaeology. (4) (Same as Classics M153D.) Lecture, three hours. Requisite: course 50 or Classics 10 or 51A. Study of development of art and architecture of Greek world from approximately 490 through 350 B.C. P/NP or letter grading.

M102E. Hellenistic Greek Art and Archaeology. (4) (Same as Classics M153E.) Lecture, three hours. Requisite: course 50 or Classics 10 or 51A. Study of development of art and architecture of Greek world from middle of 4th century B.C., including transmittal of Greek art forms to Romans. P/NP or letter grading.

M102F. Etruscan Art. (4) (Same as Classics M153F.) Lecture, three hours. Requisite: course 50 or Classics 20 or 51B. Arts of Italic peninsula from circa 1000 B.C. to end of Roman Republic. P/NP or letter grading.

M102G. Roman Art and Archaeology. (4) (Same as Classics M153G.) Lecture, three hours. Requisite: course 50 or Classics 20 or 51B. Art and architecture of Rome and its Empire from circa 300 B.C. to A.D. 300. P/NP or letter grading.

M102H. Late Roman Art. (4) (Same as Classics M153H.) Lecture, three hours. Requisites: courses 50, M102G. Art of Roman Empire from 2nd through 4th century (A.D.). P/NP or letter grading.

M102I-M102J-M102K. Classical Archaeology. (4-4-4) (Same as Classics M153I-M153J-M153K.) Lecture, three or four hours. Requisite: one course from 50, Classics 10, 20, 51A, 51B, or History 1A. Knowledge of Greek and Latin not required. General introduction to study of Aegean, Greek, and Roman architecture, sculpture, and painting. P/NP or letter grading. **M102I.** Greco-Roman Architecture; **M102J.** Greco-Roman Sculpture; **M102K.** Greco-Roman Painting.

C103A-C103B. Museum Studies. (4-4) Concurrently scheduled with courses C203A-C203B. P/NP or letter grading. **C103A.** Lecture, three hours; discussion, one hour (when scheduled); demonstrations/field trips. Introduction to historical evolution of museums and museology, theories and methods of their operations, historical and critical relationships between museology, art history, and new technologies for archiving and exhibiting artifacts and historical materials. **C103B.** Lecture, three hours; demonstrations/field trips. Lectures and discussions organized to foster active critical engagement with museum policies, operations, and productions involving focused study and on-site research on particular museum institutions and exhibitions.

C103C. Museum Studies Practicum. (2 to 4) Lecture, three hours. Requisites: courses C103A, C103B. On-site examination and discussion of selected artworks, exhibitions, and associated published and distributed materials, and of museum and gallery institutions, practices, and policies. Concurrently scheduled with course C203C. Letter grading.

C103D. Preservation of Art. (4) Lecture, three hours. Designed for Anthropology and Art History majors and other juniors/seniors. Introduction to preservation of cultural heritage materials, including what should be preserved and why, as well as who should be involved in decision-making process. Discussion of issues of preservation and restoration of these cultural heritage materials both in museum and outdoor environment contexts. Materials and techniques used to make cultural heritage materials, in relation to preservation efforts needed to prevent decay and loss. Introduction to examples of conservation issues related to sites, buildings, monuments, and collections. Ethical and contextual aspects with reference to changing values, illustrating how cultural materials may have been treated differently according to those values. Concurrently scheduled with course C203E. P/NP or letter grading.

104A. Western Islamic Art. (4) Lecture, three hours. From Tigris and Euphrates Rivers to Spain, 7th to 16th century. P/NP or letter grading.

104B. Eastern Islamic Art. (4) Lecture, three hours. From Tigris and Euphrates Rivers through Afghanistan and parts of central Asia; Ottoman Empire. P/NP or letter grading.

C104C. Problems in Islamic Art. (4) Seminar, three hours. Monuments or theoretical problems related to Islamic culture and artistic production. May be repeated for credit with consent of adviser. Concurrently scheduled with course C214. P/NP or letter grading.

105A. Early Christian Art. (4) Lecture, three hours. Requisite: course 51. Origins and development of architecture, sculpture, and painting of early Christianity to iconoclastic controversy. P/NP or letter grading.

105B. Early Medieval Art. (4) Lecture, three hours. Requisite: course 51. Art and architecture of Western Europe from Migration period until A.D. 1000. P/NP or letter grading.

105C. Romanesque Art. (4) Lecture, three hours. Requisite: course 51. Art and architecture of Western Europe in 11th and 12th centuries. P/NP or letter grading.

105D. Gothic Art. (4) Lecture, three hours. Requisite: course 51. Art and architecture of Europe in 13th century. P/NP or letter grading.

105E. Byzantine Art. (4) Lecture, three hours. Requisite: course 51. Theory and development of Byzantine art from iconoclastic controversy to 1453 and diffusion of Byzantine art in Armenia, Georgia, Caucasus, and Russia. P/NP or letter grading.

105F. Late Gothic Art and Architecture. (4) Lecture, three hours. Strongly recommended preparation: course 51. Art and architecture of Europe in 14th and early 15th centuries. P/NP or letter grading.

106A. Italian Art of Trecento. (4) Lecture, three hours. Requisite: course 57. Art and architecture of 14th century. P/NP or letter grading.

106B. Italian Art of Quattrocento. (4) Lecture, three hours. Requisite: course 57. Art and architecture of 15th century. P/NP or letter grading.

106C. Italian Art of Cinquecento. (4) Lecture, three hours. Requisite: course 57. Art and architecture of 16th century. P/NP or letter grading.

106D. Late Renaissance Art: Counter-Reformation. (4) Lecture, three hours. Requisite: course 57. Painting, sculpture, and architecture of late 16th and early 17th centuries considered in context of Counter-Reformation. P/NP or letter grading.

108A-108B. Northern Renaissance Art. (4-4) Lecture, three hours. Requisite: course 57. Course 108A is requisite to 108B. Painting and sculpture in Northern Renaissance. P/NP or letter grading.

108C. From Bruegel to Rubens. (4) Lecture, three hours. Requisite: course 57. Art and history in Spanish southern Netherlands (i.e., present-day Belgium), circa 1550 to 1650, in context of Spanish rule and revolt against it (1568 to 1585), truce with northern independent (Dutch) Netherlands (1609 to 1621), and renewal of war (1621 to 1648). P/NP or letter grading.

C109A. Baroque Art. (4) Lecture, three hours. Art and architecture of Spain or Italy, 16th to late 17th century. Concurrently scheduled with course C209A. P/NP or letter grading.

109B. Baroque Art. (4) Lecture, three hours. Requisite: course C109A. Art and architecture of Northern Europe, 16th to late 17th century. P/NP or letter grading.

109C. European Art of 18th Century. (4) Lecture, three hours. Requisite: course 57. Painting, architecture, and sculpture of 18th century examined in light of political and intellectual developments. Special emphasis on effect of rise of democratic institutions, especially French Revolution. P/NP or letter grading.

109D. Art and Architecture of Georgian England. (4) Lecture, three hours. P/NP or letter grading.

110A. European Art of 19th Century. (4) Lecture, three hours. Requisite: course 54. Neoclassicism and Romanticism, with emphasis on France—development and influence of David, Ingres, and Delacroix. P/NP or letter grading.

110B. European Art of 19th Century: Realism and Impressionism. (4) Lecture, three hours. Requisite: course 54. Inquiry into problem of realism, with emphasis on French art, but including developments in England and Germany. P/NP or letter grading.

110C. European Art of 19th and 20th Centuries: Postimpressionism to Surrealism. (4) Lecture, three hours. Requisite: course 54. Study of major developments in modern art, 1880s to 1930, including Seurat, Cezanne, Gauguin, Van Gogh, Art Nouveau, Fauvism, German expressionism. P/NP or letter grading.

M110D. Cultural and Intellectual History of Modern Europe, 19th Century. (Same as History M122E.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Climates of taste and climates of opinion. Educational, moral, and religious attitudes; art, thought, and manners of time in historical context. P/NP or letter grading.

110E. Art and Politics in Contemporary Americas: Post-World War II U.S. Art and Politics. (4) Lecture, three hours. Requisite: course 54. Selective survey of media and art supporting, condoning, and resisting U.S. capitalism and imperialism, with special emphasis on Vietnam era and arts of protest. P/NP or letter grading.

110F. Selected Topics in Modern Art. (4) Lecture, three hours. Requisite: course 54. Changing topics in modern art (post-1780) that reflect interests of individual regular and visiting faculty members. May be repeated once for credit. P/NP or letter grading.

110G. Art and Politics in Contemporary Americas: Latin America. (4) Lecture, three hours. Nationalist and revolutionary responses of Latin America to U.S. imperialism. Discussion of cases of Mexico, Cuba, Chile, and Nicaragua. P/NP or letter grading.

C110H. Latin American Art of 20th Century. (4) Lecture, three hours; discussion, one hour (when scheduled). Mainstream modern and contemporary art and architecture of selected Latin American countries, including both modernist and postmodernist

forms, considered in context of social and political concerns, both national and international. Concurrently scheduled with course C254. P/NP or letter grading.

C110I. Mexican Art in Modern Age. (4) Lecture, three hours. Mexican art of 19th and 20th centuries, from foundation of academy in 1785 to present day. Study of art and revolution, muralism, surrealism, indigenism, postcolonialism, and postmodernism in painting, sculpture, prints, photography, and architecture. Concurrently scheduled with course C252. P/NP or letter grading.

C112A. American Art before Civil War. (4) Lecture, three hours. Painting, sculpture, and architecture in U.S. from Colonial period through Civil War. Concurrently scheduled with course C212A. P/NP or letter grading.

C112B. American Art in Gilded Age, 1860 to 1900. (4) Lecture, three hours. Painting, sculpture, and architecture in U.S. from Civil War to turn of century. Concurrently scheduled with course C212B. P/NP or letter grading.

C112C. American Art, 1900 to 1945. (4) Lecture, three hours. Painting, sculpture, and photography in U.S. from 1900 to 1945. Concurrently scheduled with course C212C. P/NP or letter grading.

CM112D. African American Art. (4) (Same as Afro-American Studies CM112D.) Lecture, three hours. Detailed inquiry into work of 20th-century African American artists whose works provide insightful and critical commentary about major features of American life and society, including visits to various key African American art institutions in Los Angeles. Concurrently scheduled with course CM212D. P/NP or letter grading.

CM112E. African American Art. (4) (Same as Afro-American Studies CM112E.) Lecture, three hours. Continuation of course CM112D, involving detailed inquiry into work of 20th-century African American artists. Concurrently scheduled with course CM212E. P/NP or letter grading.

CM112F. Imaging Black Popular Culture. (4) (Same as Afro-American Studies CM112F.) Lecture, three hours. Critical examination of media ranging from African American painting and sculpture to MTV and advertising, with emphasis on relationship between black visual production and racism, Afrocentrism, political resistance, and notions of blackness. Concurrently scheduled with course CM212F. P/NP or letter grading.

113A. Architecture in U.S. (4) Lecture, three hours; discussion, one hour. Introduction to architecture built in U.S. over last 5,000 years. Architecture as vehicle for political and cultural authority, citizenship, ethnic and social identity; its role in defining place and our relationship to natural environment and as vehicle for asserting human control over natural world; its place in world of work and commerce; and its status as professional and aesthetic pursuit. P/NP or letter grading.

113B. Cities in History. (4) Lecture, three hours; discussion, one hour. Examination of history of cities worldwide, locating cities in their aesthetic, social, cultural, and symbolic contexts. History of cities from origins of urbanism to present, with focus on recent centuries. P/NP or letter grading.

114A. Early Art of India. (4) Lecture, three hours. Not open to freshmen. Survey of Indian art from Indus Valley cultures to 10th century. Emphasis on Buddhist and Hindu backgrounds of arts. P/NP or letter grading.

114C. Japanese Art. (4) Lecture, three hours. Not open to freshmen. Japanese art from its beginning in prehistory through 19th century. Emphasis on development of Buddhist art and its relationship with culture. P/NP or letter grading.

114D. Later Art of India. (4) Lecture, three hours. Not open to freshmen. Survey of Indian art from 10th to 19th century. Decline of Buddhist art, last efflorescence of Hindu architecture, Muslim painting and architecture, and Rajput painting. P/NP or letter grading.

114E. Arts of Korea. (4) Lecture, three hours. Art and archaeology of Korea from Neolithic Period through Yi dynasty. Particular emphasis on early archaeology and state formation, Buddhist art, Koryo ceramics, and Yi literati painting. P/NP or letter grading.

114F. Arts of Southeast Asia. (4) Lecture, three hours. Not open to freshmen. Southeast Asian art from its beginning in prehistory through 19th century. Study of art of selected cultures from Burma, Malaysia, Thailand, Cambodia, Vietnam, and Indonesia. P/NP or letter grading.

114G. Archaeology of Japanese Islands. (4) Lecture, three hours. Limited to juniors/seniors. Survey of archaeology of Japanese islands from Paleolithic to historical period, with focus on earliest stone age cultures and Jomon period. Consideration of Yayoi period in context of origins of agriculture on islands, while discussion of Kofun period emphasizes state formation. Detailed treatment of archaeology of historical periods, especially 6th to 8th centuries. Consideration of relationships with Korean peninsula. P/NP or letter grading.

C115A. Advanced Indian Art. (4) Lecture, three hours. Requisite: course 114A. Study in Indian sculpture and architecture. Concurrently scheduled with course C257. P/NP or letter grading.

C115B. Advanced Chinese Art. (4) Lecture, three hours. Study in Chinese painting and sculpture. Concurrently scheduled with course C258. P/NP or letter grading.

C115C. Advanced Japanese Art. (4) Lecture, three hours. Requisite: course 114C. Study in Japanese painting and sculpture. Concurrently scheduled with course C259. P/NP or letter grading.

C115D. Art and Material Culture, Neolithic to 210 B.C. (4) Lecture, three hours. Genesis of Chinese civilization in light of new archaeological finds, including sites and works of art (e.g., ceramics, bronzes, jades). Concurrently scheduled with course C261A. P/NP or letter grading.

C115E. Art and Material Culture of Early Imperial China, 210 B.C. to A.D. 906. (4) Lecture, three hours. Palaces and tombs of early imperial dynasties, impact of Buddhist art (cave temples), rise of new media and technologies. Concurrently scheduled with course C261B. P/NP or letter grading.

C115F. Art and Material Culture of Late Imperial China, 906 to 1911. (4) Lecture, three hours. Secular and religious (Buddhist and Taoist) architecture, painting, sculpture, and various luxury industries (lacquer, porcelain, textiles, jade, bronze, furniture, wood and bamboo carving, etc.). Concurrently scheduled with course C261C. P/NP or letter grading.

C115G. Art in Modern China. (4) Lecture, three hours. Concentrated look at major schools and masters of Chinese art from turn of 20th century to present, with focus on interaction with foreign cultures and issues of self-identity, assimilation, modernity, tradition, and continuity. Consideration of recent developments in Chinese art in global context. Concurrently scheduled with course C261D. P/NP or letter grading.

C115I. Selected Topics in Chinese Art. (4) Lecture, three hours. Variable topics in Chinese art that reflect interests of individual regular and/or visiting faculty members. Concurrently scheduled with course C261E. P/NP or letter grading.

C117A. Pre-Columbian Art of Mexico. (4) Lecture, three hours. Requisite: course 55B. Study of art of selected cultures of northern Mesoamerica from circa 1200 B.C. to Conquest, with emphasis on historical and iconographic problems. Concurrently scheduled with course C218A. P/NP or letter grading.

C117B. Pre-Columbian Art of Maya. (4) Lecture, three hours. Requisite: course 55B. Study of art of selected Maya-speaking cultures of southern Mesoamerica from circa 2000 B.C. to Conquest, with particular emphasis on history and iconography. Concurrently scheduled with course C218B. P/NP or letter grading.

C117C. Pre-Columbian Art of Andes. (4) Lecture, three hours; discussion, one hour. Requisite: course 55B. Study of art of selected cultures of Colombia, Ecuador, Peru, and Bolivia from circa 4000 B.C. to Conquest, with particular emphasis on history and iconography of art of Peru. Concurrently scheduled with course C218C. P/NP or letter grading.

C117D. Aztec Art. (4) Lecture, three hours. Requisite: course 55B or C117A. Painting, sculpture, architecture, and other arts of Nahuatl-speaking peoples of central Mexico in centuries before Spanish conquest, with emphasis on their social and historical context and major scholarly debates. Concurrently scheduled with course C218D. P/NP or letter grading.

117E. Colonial Latin American Art. (4) Lecture, three hours. Hybrid visual cultures created in aftermath of this cultural collision in Mexico, former Vice-royalty of New Spain, from 16th to 18th century. Topics include theories of conquest and colonization; role of art and architecture in conquest, conversion, and colonization; indigenous artistic responses and creation of hybrid visual practices in featherwork, manuscripts, painting, sculpture, and architecture; maps and geography of colonization; urban planning and utopian ideals; Counter-Reformation and politics of representation; saints' cults and gender ideologies; Aztec and Hispanic Catholic blood sacrifice imagery; processional sculpture and fiestas; cult of Virgin of Guadalupe; and arts and rise of creole nationalism. Analysis of variety of readings, including indigenous accounts of conquest and Inquisition guidelines for religious imagery. Letter grading.

118A. Arts of Oceania. (4) Lecture, three hours. Requisite: course 55A. Survey of arts of major island groupings of Pacific, emphasizing style-regions and broad historical relationships. P/NP or letter grading.

118C. Arts of Sub-Saharan Africa. (4) Lecture, three hours. Critical examination of key themes in art and architecture of Africa, with emphasis on ways visual arts and built environment function with respect to larger social and cultural issues. P/NP or letter grading.

118D. Arts of Native North America. (4) Lecture, three hours. Survey of painting, sculpture, and other arts from Inuit to peoples of Caribbean and Southwestern U.S. P/NP or letter grading.

118E. Advanced Studies in Non-Western Art. (4) Lecture, three hours. Requisite: course 118A or 118C or 118D. Selected topics in arts of non-Western peoples that reflect interests of individual regular and visiting faculty members. P/NP or letter grading.

C119C. Contemporary Arts of Africa. (4) Lecture, three hours. Survey of African visual practices since mid-20th century, with special emphasis on changing meaning of art object, status of "African" artist, global reception of contemporary African art, and very definitions of "contemporary African art." Concurrently scheduled with course C216C. P/NP or letter grading.

C119D. Architecture and Urbanism in Africa. (4) Lecture, three hours. Survey of African built environment at various moments and in different places from about 200 C.E. to present, with emphasis on cultural, social, and historical contexts of architecture, gender, and space, and contemporary African cities. Concurrently scheduled with course C216D. P/NP or letter grading.

119E. African Civilizations. (4) Lecture, three hours. Development of three very different African civilizations through their arts from 100 B.C.E. to present. P/NP or letter grading.

127. Undergraduate Seminar. (4) Seminar, three hours. Designed for juniors/seniors. Selected aspects of art history explored through readings, discussion, research papers, and oral presentations. May be repeated twice. P/NP or letter grading.

C140A. History of Korean Painting. (4) Lecture, three hours. Requisite: course 114E. Korean painting history from Three Kingdom period to 19th century, with special emphasis on Choson dynasty (1392 to 1910). Concurrently scheduled with course C242A. P/NP or letter grading.

C140B. History of Korean Ceramics. (4) Lecture, three hours. Requisite: course 114E. History of Korean ceramics from Neolithic period to 19th century, with special emphasis on technological and stylistic developments. Concurrently scheduled with course C242B. P/NP or letter grading.

C140C. History of Korean Buddhist Art. (4) Lecture, three hours. Requisite: course 114E. History of Korean Buddhist art from Three Kingdom period to Choson dynasty, with special emphasis on Buddhist sculpture, painting, and architecture. Concurrently scheduled with course C242C. P/NP or letter grading.

C140D. Selected Topics in Korean Art. (4) Lecture, three hours. Requisite: course 114E. Variable topics in Korean art that reflect interests of individual regular and/or visiting faculty members. Concurrently scheduled with course C242D. P/NP or letter grading.

C147. Modern Art, 1900 to 1950. (4) Lecture, three hours. Inquiry into 20th-century modernism from Fauvism to abstract expressionism. Topics include primitivism, gender, and sexuality in modernist art; origins of abstraction, collage, photomontage, and ready-made; rise of automatism and chance procedures; art, utopia, and political revolution; antimodernism and fascism; mass culture, machine paradigm, and work of art in age of mechanical reproduction. Concurrently scheduled with course C247. P/NP or letter grading.

C149A. Dada, 1915 to 1923. (4) Lecture, three hours; discussion, one hour (when scheduled). Introduction to modernism and historical avant-garde of early 20th century, tracing in detail emergence of Dada avant-garde in its various geographical locales during and after World War I. Visual art, literature, film, and performance addressed, with special attention to invention of series of avant-garde strategies crucial to Dada: ready-made, chance procedures, mechanical drawing, and photomontage. Concurrently scheduled with course C249A. P/NP or letter grading.

C149B. Surrealism, 1924 to 1939. (4) Lecture, three hours; discussion, one hour (when scheduled). Study of art, literature, and film associated with surrealist movement in France, with special attention to dissident surrealism of writer and philosopher Georges Bataille, as well as to challenge to art history posed by surrealism's engagement with lessons of psychoanalysis. Concurrently scheduled with course C249B. P/NP or letter grading.

C150A. Contemporary Art, 1940s to 1950s. (4) Lecture, three hours. Requisite: course 54. Study of major artistic and cultural trends following World War II in U.S. and Europe, covering abstract expressionism to pop art. Concurrently scheduled with course C250A. P/NP or letter grading.

C150B. Contemporary Art, 1960s to 1970s. (4) Lecture, three hours. Requisite: course 54. Study of ambitions and contexts of pop art, minimalism, conceptual art, feminist art, performance, land art, and more. Concurrently scheduled with course C250B. P/NP or letter grading.

C150C. Contemporary Art, 1980s to Present. (4) Lecture, three hours; discussion, one hour. Requisite: course 54. Study of politics of representation at end of century, covering dominant strategies and trends in postmodernist art. Concurrently scheduled with course C250C. P/NP or letter grading.

150D. Selected Topics in Contemporary Art. (4) Lecture, three hours. Requisite: course 54. Changing topics in contemporary art (post-1945) that reflect interests of individual regular and/or visiting faculty members. May be repeated once for credit. P/NP or letter grading.

C171A-C171B-C171C. History of Photography. (4-4-4) Concurrently scheduled with courses C271A-C271B-C271C. P/NP or letter grading. **C171A.** 1839 to 1910. Lecture, three hours. Study of origin, social functions, and development of photography in 19th and early 20th centuries, from Niépce to Atget. **C171B.** 1910 to Present. Lecture, three hours; discussion, one hour. History of photography in 20th century, with special attention to photography's entrance into project of avant-garde and its role in formation of postmodern aesthetic. **C171C.** Selected Topics. Lecture, three hours. Variable topics in history of photography that reflect interests of individual regular and/or visiting faculty members.

M172. Armenian Painting, 17th to 20th Century. (4) (Same as Armenian M172.) Lecture, three hours. Overview of development of modern Armenian painting out of its matrix in 17th and 18th centuries. P/NP or letter grading.

M173. Medieval Armenian Miniature Painting. (4) (Same as Armenian M173.) Lecture, three hours. Examination of cultural and historical impact of Armenian miniature paintings. P/NP or letter grading.

C180A. Art and Empire. (4) Lecture, three hours. Examination of relationship between art and imperial ideologies and introduction to current issues in colonial studies and postcolonial criticism. Concurrently scheduled with course C280A. Letter grading.

C180B. Modernism and Mankind. (4) Lecture, three hours. Study of links between modern anthropology and early 20th-century artistic movements, drawing on ethnography, art criticism, aesthetic theory, and specific museum and exhibition debates. Concurrently scheduled with course C280B. Letter grading.

C180C. Modern and Contemporary South Asian Art. (4) Lecture, three hours. Topics in modern and contemporary South Asian art from 1900 to present. Concurrently scheduled with course C280C. Letter grading.

195. Museum Studies Internship. (2) Tutorial, four hours; fieldwork, three hours. Requisite: course C103A or C103B. Limited to junior/senior Museum Studies minors. Internship in supervised setting at participating host museum at UCLA or in greater Los Angeles area. Participation in ongoing museum projects and operations, with specific work to be determined by host institution in consultation with faculty mentor. Curatorial, educational, communications, public relations, and development work may be included, as well as assistance at public programs and related events. Students meet on regular basis with faculty mentor and provide periodic reports of their experience. May be repeated for credit. Individual contract with supervising faculty mentor required. P/NP grading.

197. Individual Studies in Art History. (2 to 4) Tutorial, to be arranged. Preparation: 3.0 grade-point average in major. Limited to seniors. Individual intensive study for majors, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for maximum of 8 units. Eight units may be applied toward major. Individual contract required. P/NP or letter grading.

198A-198B. Honors Research in Art History. (4-4) Tutorial, to be arranged. Preparation: completion of minimum of four upper division art history courses with 3.5 departmental grade-point average and overall 3.0 grade-point average. Limited to junior/senior Art History and History/Art History majors. Two-term independent research project under supervision of appropriate faculty member, culminating in departmental honors thesis of approximately 30 pages. Individual contract required. In Progress (198A) and letter (198B) grading.

199. Directed Research in Art History. (2 to 4) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200. Art Historical Theories and Methodologies. (4) Seminar, three hours. Critical examination of history of discipline of art history, with studies of various theoretical, critical, and methodological approaches to visual arts from antiquity to present. May be repeated for credit with consent of adviser. S/U or letter grading.

201. Topics in Historiography of Art History. (4) Seminar, three hours. Critical examination of historiographic traditions of specific areas and fields within discipline of art history, concentrating on particular time periods, geographical areas, artistic traditions, or work of one or more authors. May be repeated for credit with consent of adviser. S/U or letter grading.

202. Topics in Theory and Criticism in Art History. (4) Seminar, three hours. Focused studies of various theoretical and critical traditions within art history, concentrating on particular issues, authors, or methodologies either within or across historical and cultural areas. May be repeated for credit with consent of adviser. S/U or letter grading.

C203A-C203B. Museum Studies. (4-4) Concurrently scheduled with courses C103A-C103B. S/U or letter grading. **C203A.** Lecture, three hours; discussion, one hour (when scheduled); demonstrations/field trips. Introduction to historical evolution of museums and museology, theories and methods of their operations, historical and critical relationships between museology, art history, and new technologies for archiving and exhibiting artifacts and historical materials. **C203B.** Lecture, three hours; demonstrations/field trips. Lectures and discussions organized to foster active critical engagement with museum policies, operations, and productions involving focused study and on-site research on particular museum institutions and exhibitions. May be repeated for credit with consent of adviser.

C203C. Museum Studies Practicum. (2 to 4) Lecture, three hours. Requisites: courses C203A, C203B. On-site examination and discussion of selected artworks, exhibitions, and associated published and distributed materials, and of museum and gallery institutions, practices, and policies. Concurrently scheduled with course C103C. Letter grading.

203D. Selected Topics in Museum Studies. (4) Seminar, three hours. Changing topics in museological, curatorial, and exhibition practices that reflect interests of regular and visiting faculty members. S/U or letter grading.

C203E. Preservation of Art. (4) Lecture, three hours. Designed for anthropology, archaeology, and art history graduate students. Introduction to preservation of cultural heritage materials, including what should be preserved and why, as well as who should be involved in decision-making process. Discussion of issues of preservation and restoration of these cultural heritage materials both in museum and outdoor environment contexts. Materials and techniques used to make cultural heritage materials, in relation to preservation efforts needed to prevent decay and loss. Introduction to examples of conservation issues related to sites, buildings, monuments, and collections. Ethical and contextual aspects with reference to changing values, illustrating how cultural materials may have been treated differently according to those values. Concurrently scheduled with course C103D. S/U or letter grading.

M203F. Techniques and Materials of Archaeological and Cultural Materials: In-Situ and Ex-Situ Architectural Decorative Surfaces. (4) (Same as Conservation M250 and Materials Science M215.) Seminar, two hours; laboratory, three hours. Requisite: Conservation M210 or Materials Science M216 or C112. Recommended: course M204A. Designed for graduate conservation and art history students. Principles of archaeological conservation of in-situ and ex-situ monumental archaeological and cultural materials, with focus on rock art, wall paintings, polychrome sculpture, decorative architectural elements, and mosaics, through study of their constituent material and techniques in context of their geographical and chronological occurrence, technological developments, physical and conservation history, and physical location. Lectures, seminars, and case-study presentations, museum and site visits, hands-on laboratory experience, and independent research that incorporates literary survey of archaeological and conservation records, scientific data, and ancient treatises. Letter grading.

204. Restoration, Preservation, and Conservation. (4) Seminar, two hours. May not be repeated. S/U or letter grading.

M204A. Digital Imaging and Documentation for Art and Archaeology. (4) (Same as Conservation M215.) Seminar, two hours; laboratory, three hours. How to photograph and record objects of cultural and artistic significance. Methods used to enhance important details and invisible features. How to graphically

illustrate significant and diagnostic characteristics (such as original preparatory techniques, surface texture, and deterioration phenomena) and prepare technical data forms of objects. Opportunity to develop basic skills in digital photo-documentation and diagnostic imaging, including ultraviolet and infrared recording techniques and multispectral imaging. Letter grading.

205. Studies in Prints. (4) Seminar, two hours. Critical studies in history and connoisseurship of graphic arts in Western world. Group or individual studies often culminate in professionally directed exhibitions produced by Grunwald Center for Graphic Arts. May be repeated for credit with consent of adviser. S/U or letter grading.

206. Studies in Drawings. (4) Seminar, two hours. Critical studies in history and connoisseurship of draughtsmanship in Western world. Individual studies emphasizing professional presentation. Group studies may culminate in exhibitions sponsored by Grunwald Center for Graphic Arts. May be repeated for credit with consent of adviser. S/U or letter grading.

207. Consortium Scholar Seminar at Getty Research Institute. (4) Seminar, three hours. Intramural graduate seminar at Getty Museum in collaboration with Getty Research Institute. Instructors, topics, and format vary. S/U or letter grading.

208. Literature of African Art. (4) Seminar, three hours. Limited to graduate students. Designed to prepare both graduate African Art minors and specialists to read certain paradigmatic texts in field of African art history with critical fluency. S/U or letter grading.

C209A. Baroque Art. (4) Lecture, three hours. Art and architecture of Spain or Italy, 16th to late 17th century. Concurrently scheduled with course C109A. S/U or letter grading.

210. Egyptian Art. (4) Seminar, two hours. Requisites: courses M101A, M101B, M102A. Art in Egypt during Late period and Greco-Roman period. Students should be ready to prepare for every meeting briefing of topic from archaeological memoirs, not to exceed 10 minutes. Some lectures. May be repeated for credit with consent of adviser. S/U or letter grading.

211. Topics in Aegean Art. (4) Seminar, two hours. Requisites: courses M102A, M102B. Art and architecture of Aegean Bronze Age (3000 to 1000 B.C.). Monuments or theoretical problems related to art and culture of Crete, Greece, Cyclades, or Western Anatolia. May be repeated for credit with consent of adviser. S/U or letter grading.

C212A. American Art before Civil War. (4) Lecture, three hours. Painting, sculpture, and architecture in U.S. from Colonial period through Civil War. May be repeated for credit with consent of adviser. Concurrently scheduled with course C112A. S/U or letter grading.

C212B. American Art in Gilded Age, 1860 to 1900. (4) Lecture, three hours. Painting, sculpture, and architecture in U.S. from Civil War to turn of century. May be repeated for credit with consent of adviser. Concurrently scheduled with course C112B. S/U or letter grading.

C212C. American Art, 1900 to 1945. (4) Lecture, three hours. Painting, sculpture, and photography in U.S. from 1900 to 1945. May be repeated for credit with consent of adviser. Concurrently scheduled with course C112C. S/U or letter grading.

CM212D. African American Art. (4) (Same as Afro-American Studies CM212D.) Lecture, three hours. Detailed inquiry into work of 20th-century African American artists whose works provide insightful and critical commentary about major features of American life and society, including visits to various key African American art institutions in Los Angeles. May be repeated for credit with consent of adviser. Concurrently scheduled with course CM112D. S/U or letter grading.

CM212E. African American Art. (4) (Same as Afro-American Studies CM212E.) Lecture, three hours. Continuation of course CM212D, involving detailed inquiry into work of 20th-century African American artists. Concurrently scheduled with course CM112E. Letter grading.

CM212F. Imaging Black Popular Culture. (4) (Same as Afro-American Studies CM212F.) Lecture, three hours. Critical examination of media ranging from African American painting and sculpture to MTV and advertising, with emphasis on relationship between black visual production and racism, Afrocentrism, political resistance, and notions of blackness. Concurrently scheduled with course CM112F. S/U or letter grading.

213. Advanced Studies in Islamic Art. (4) Seminar, two hours. Art and architecture of Islamic world (Spain to Iran) from 7th to 17th century. Monuments or theoretical problems related to Islamic culture and artistic production. May be repeated for credit with consent of adviser. S/U or letter grading.

C214. Problems in Islamic Art. (4) Seminar, three hours. Monuments or theoretical problems related to Islamic culture and artistic production. May be repeated for credit with consent of adviser. Concurrently scheduled with course C104C. S/U or letter grading.

C216C. Contemporary Arts of Africa. (4) Lecture, three hours. Survey of African visual practices since mid-20th century, with special emphasis on changing meaning of art object, status of "African" artist, global reception of contemporary African art, and very definitions of "contemporary African art." Concurrently scheduled with course C119C. S/U or letter grading.

C216D. Architecture and Urbanism in Africa. (4) Lecture, three hours. Survey of African built environment at various moments and in different places from about 200 C.E. to present, with emphasis on cultural, social, and historical contexts of architecture, gender, and space, and contemporary African cities. Concurrently scheduled with course C119D. S/U or letter grading.

217. Primitivism and Art. (4) Lecture, three hours. History of primitivism in visual arts and its institutional base from ancient Greece to present, with emphasis on relevance to contemporary issues, critiques, and theory. May be repeated for credit with consent of adviser. S/U or letter grading.

C218A. Pre-Columbian Art of Mexico. (4) Lecture, three hours. Requisite: course 55B. Study of art of selected cultures of northern Mesoamerica from circa 1200 B.C. to Conquest, with emphasis on historical and iconographic problems. May be repeated for credit with consent of adviser. Concurrently scheduled with course C117A. S/U or letter grading.

C218B. Pre-Columbian Art of Maya. (4) Lecture, three hours. Requisite: course 55B. Study of art of selected Maya-speaking cultures of southern Mesoamerica from circa 2000 B.C. to Conquest, with particular emphasis on history and iconography. May be repeated for credit with consent of adviser. Concurrently scheduled with course C117B. S/U or letter grading.

C218C. Pre-Columbian Art of Andes. (4) Lecture, three hours; discussion, one hour. Requisite: course 55B. Study of art of selected cultures of Colombia, Ecuador, Peru, and Bolivia from circa 4000 B.C. to Conquest, with particular emphasis on history and iconography of art of Peru. May be repeated for credit with consent of adviser. Concurrently scheduled with course C117C. S/U or letter grading.

C218D. Aztec Art. (4) Lecture, three hours. Requisite: course 55B or C117A. Painting, sculpture, architecture, and other arts of Nahuatl-speaking peoples of central Mexico in centuries before Spanish conquest, with emphasis on their social and historical context and major scholarly debates. May be repeated for credit with consent of adviser. Concurrently scheduled with course C117D. S/U or letter grading.

218E. Colonial Latin American Art. (4) Lecture, three hours. Hybrid visual cultures created in aftermath of this cultural collision in Mexico, former Vice-royalty of New Spain, from 16th to 18th century. Topics include theories of conquest and colonization; role of art and architecture in conquest, conversion, and colonization; indigenous artistic responses and creation of hybrid visual practices in featherwork, manuscripts, painting, sculpture, and architecture; maps and geography of colonization; urban planning and

utopian ideals; Counter-Reformation and politics of representation; saints' cults and gender ideologies; Aztec and Hispanic Catholic blood sacrifice imagery; processional sculpture and fiestas; cult of Virgin of Guadalupe; and arts and rise of Creole nationalism. Analysis of variety of readings, including indigenous accounts of conquest and Inquisition guidelines for religious imagery. S/U or letter grading.

219A. Oceanic Art. (4) Seminar, three hours. Studies in selected topics in art of Pacific islands. May be repeated for credit with consent of adviser. S/U or letter grading.

219B. Pre-Columbian Art. (4) Seminar, three hours. Studies in selected topics in art of pre-Hispanic Latin America. May be repeated for credit with consent of adviser. S/U or letter grading.

219C. African Art. (4) Seminar, three hours. Studies in selected topics in art of sub-Saharan Africa. May be repeated for credit with consent of adviser. S/U or letter grading.

219D. Native North American Art. (4) Seminar, three hours. Studies in selected topics in art of American Indians. May be repeated for credit with consent of adviser. S/U or letter grading.

220. Oceanic, Pre-Columbian, African, and Native North American Art. (4) Seminar, three hours. Studies in selected topics comparing arts of Oceania, Africa, and pre-Columbian and Native North America. May be repeated for credit with consent of adviser. S/U or letter grading.

221. Topics in Classical Art. (4) Seminar, two to three hours. Studies in Parthian art. Site-by-site survey of Near East (Afghanistan, Iran, Iraq, Syria) during period of Greek and Parthian control. May be repeated for credit with consent of adviser. S/U or letter grading.

223. Classical Art. (4) Seminar, two hours. Studies in Greco-Roman art and archaeology. Studies of specific periods, sites, or artistic media. May be repeated for credit with consent of adviser. S/U or letter grading.

225. Medieval Art. (4) Seminar, two hours. Studies in selected topics in Byzantine and European medieval art. May be repeated for credit with consent of adviser. S/U or letter grading.

226A-226B. Medieval Art and Architecture. (4-4) Seminar, two hours. Studies in selected topics in Byzantine and European medieval art. Seminar extends over two consecutive terms. May be repeated for credit with consent of adviser. In Progress (226A) and letter (226B) grading.

229. Renaissance and Baroque Paleography. (4) Seminar, two hours. Preparation: knowledge of Italian, working knowledge of Latin. Workshop approach to documents pertaining to artistic commissions from 15th to 17th century in Italy to study various aspects of handwriting in official and private deeds, correspondence, treatises, and inscriptions. May be repeated for credit with consent of adviser. S/U or letter grading.

230. Italian Renaissance Art. (4) Seminar, two hours. Preparation: knowledge of Italian. Study of various aspects of Leonardo's theoretical approach to art in terms of sources and impact on followers. May be repeated for credit with consent of adviser. S/U or letter grading.

231. Leonardo and Renaissance Theory of Art. (4) Seminar, two hours. Preparation: knowledge of Italian. Study of various aspects of Leonardo's theoretical approach to art in terms of sources and impact on followers. May be repeated for credit with consent of adviser. S/U or letter grading.

235. Northern Renaissance Art. (4) Seminar, two hours. Preparation: knowledge of German. Emphasis on selected topic (e.g., particular artist, trend, or problem). Research papers and oral reports required. May be repeated for credit with consent of adviser. S/U or letter grading.

240. Baroque Art. (4) Seminar, two hours. Emphasis on selected topic (e.g., particular artist, trend, or problem). Research papers and oral reports required. Lan-

guage requirements depend on area of focus. May be repeated for credit with consent of adviser. S/U or letter grading.

M241A-M241B. Seminars: Modern European History. (4-4) (Same as History M230A-M230B.) Seminar, three hours. Course M241A is requisite to M241B. May be repeated for credit with consent of adviser. In Progress (M241A) and S/U or letter (M241B) grading.

C242A. History of Korean Painting. (4) Lecture, three hours. Requisite: course 114E. Korean painting history from Three Kingdom period to 19th century, with special emphasis on Choson dynasty (1392 to 1910). Concurrently scheduled with course C140A. S/U or letter grading.

C242B. History of Korean Ceramics. (4) Lecture, three hours. Requisite: course 114E. History of Korean ceramics from Neolithic period to 19th century, with special emphasis on technological and stylistic developments. Concurrently scheduled with course C140B. S/U or letter grading.

C242C. History of Korean Buddhist Art. (4) Lecture, three hours. Requisite: course 114E. History of Korean Buddhist art from Three Kingdom period to Choson dynasty, with special emphasis on Buddhist sculpture, painting, and architecture. Concurrently scheduled with course C140C. S/U or letter grading.

C242D. Selected Topics in Korean Art. (4) Lecture, three hours. Requisite: course 114E. Variable topics in Korean art that reflect interests of individual regular and/or visiting faculty members. Concurrently scheduled with course C140D. S/U or letter grading.

243. Selected Topics in Korean Art. (4) Lecture, three hours. Studies of Korean art under different art-historical perspectives, methods, and theories. Individual studies, with emphasis on professional presentation. Group studies may be linked to exhibition projects. May be repeated with consent of instructor. S/U or letter grading.

244. Topics in European Art, 1700 to 1900. (4) Seminar, two to three hours. May be repeated for credit with consent of adviser. S/U or letter grading.

245. European Art, 1700 to 1900. (4) Seminar, two hours. May be repeated for credit with consent of adviser. S/U or letter grading.

C247. Modern Art, 1900 to 1950. (4) Lecture, three hours; discussion, one hour. Inquiry into 20th-century modernism from Fauvism to abstract expressionism. Topics include primitivism, gender, and sexuality in modernist art; origins of abstraction, collage, photomontage, and ready-made; rise of automatism and chance procedures; art, utopia, and political revolution; antimodernism and fascism; mass culture, machine paradigm, and work of art in age of mechanical reproduction. Concurrently scheduled with course C147. S/U or letter grading.

C249A. Dada, 1915 to 1923. (4) Lecture, three hours; discussion, one hour (when scheduled). Introduction to modernism and historical avant-garde of early 20th century, tracing in detail emergence of Dada avant-garde in its various geographical locales during and after World War I. Visual art, literature, film, and performance addressed, with special attention to invention of series of avant-garde strategies crucial to Dada: ready-made, chance procedures, mechanical drawing, and photomontage. Concurrently scheduled with course C149A. S/U or letter grading.

C249B. Surrealism, 1924 to 1939. (4) Lecture, three hours; discussion, one hour (when scheduled). Study of art, literature, and film associated with surrealist movement in France, with special attention to dissident surrealism of writer and philosopher Georges Bataille, as well as to challenge to art history posed by surrealism's engagement with lessons of psychoanalysis. Concurrently scheduled with course C149B. S/U or letter grading.

C250A. Contemporary Art, 1940s to 1950s. (4) Lecture, three hours. Requisite: course 54. Study of major artistic and cultural trends following World War II in U.S. and Europe, covering abstract expressionism to pop art. Concurrently scheduled with course C150A. S/U or letter grading.

C250B. Contemporary Art, 1960s to 1970s. (4) Lecture, three hours. Requisite: course 54. Study of ambitions and contexts of pop art, minimalism, conceptual art, feminist art, performance, land art, and more. Concurrently scheduled with course C150B. S/U or letter grading.

C250C. Contemporary Art, 1980s to Present. (4) Lecture, three hours; discussion, one hour. Requisite: course 54. Study of politics of representation at end of century, covering dominant strategies and trends in postmodernist art. Concurrently scheduled with course C150C. S/U or letter grading.

251. Contemporary Art. (4) Seminar, three hours. Selected topics in contemporary art, criticism, and theory. S/U or letter grading.

C252. Mexican Art in Modern Age. (4) Lecture, three hours. Mexican art of 19th and 20th centuries, from foundation of academy in 1785 to present day. Study of art and revolution, muralism, surrealism, indigenism, postcolonialism, and postmodernism in painting, sculpture, prints, photography, and architecture. Concurrently scheduled with course C110I. S/U or letter grading.

253. Modern Art. (4) Seminar, two hours. Changing topics in modern art (including illustration and other popular forms) that reflect interests of particular faculty members. Political and economic factors affecting arts of France and Germany at various times. May be repeated for credit with consent of adviser. S/U or letter grading.

C254. Latin American Art of 20th Century. (4) Lecture, three hours; discussion, one hour (when scheduled). Mainstream modern and contemporary art and architecture of selected Latin American countries, including both modernist and postmodernist forms, considered in context of social and political concerns, both national and international. May be repeated for credit with consent of adviser. Concurrently scheduled with course C110H. S/U or letter grading.

255. American Art. (4) Seminar, two hours. Requisite: course C112A or C112B or C112C, depending on topic. Topics in American art from Colonial period to present. Discussion of weekly readings, student oral presentations, and papers. May be repeated for credit with consent of adviser. S/U or letter grading.

M256. Topics in African American Art. (4) (Same as Afro-American Studies M256.) Seminar, three hours. Requisite: course CM112D or CM112E or CM112F. Topics in African American art from 18th century to present. May be repeated for credit with consent of graduate adviser. S/U or letter grading.

C257. Advanced Indian Art. (4) Lecture, three hours. Requisite: course 114A. Study in Indian sculpture and architecture. May be repeated for credit with consent of adviser. Concurrently scheduled with course C115A. S/U or letter grading.

C258. Advanced Chinese Art. (4) Lecture, three hours. Study in Chinese painting and sculpture. May be repeated for credit with consent of adviser. Concurrently scheduled with course C115B. S/U or letter grading.

C259. Advanced Japanese Art. (4) Lecture, three hours. Requisite: course 114C. Study in Japanese painting and sculpture. May be repeated for credit with consent of adviser. Concurrently scheduled with course C115C. S/U or letter grading.

260A. Indian Art. (4) Lecture, two hours. Advanced studies in secular and religious artistic traditions of India. May be repeated for credit with consent of adviser. S/U or letter grading.

260B. Chinese Art. (4) Lecture, two hours. Advanced studies in secular and religious artistic traditions of China. May be repeated for credit with consent of adviser. S/U or letter grading.

260C. Japanese Art. (4) Lecture, two hours. Advanced studies in secular and religious artistic traditions of Japan. May be repeated for credit with consent of adviser. S/U or letter grading.

C261A. Art and Material Culture, Neolithic to 210 B.C. (4) Lecture, three hours. Genesis of Chinese civilization in light of new archaeological finds, including sites and works of art (e.g., ceramics, bronzes, jades). May be repeated for credit with consent of adviser. Concurrently scheduled with course C115D. Extensive research paper required of graduate students. S/U or letter grading.

C261B. Art and Material Culture of Early Imperial China, 210 B.C. to A.D. 906. (4) Lecture, three hours. Palaces and tombs of early imperial dynasties, impact of Buddhist art (cave temples), rise of new media and technologies. May be repeated for credit with consent of adviser. Concurrently scheduled with course C115E. S/U or letter grading.

C261C. Art and Material Culture of Late Imperial China, 906 to 1911. (4) Lecture, three hours. Secular and religious (Buddhist and Taoist) architecture, painting, sculpture, and various luxury industries (lacquer, porcelain, textiles, jade, bronze, furniture, wood and bamboo carving, etc.). May be repeated for credit with consent of adviser. Concurrently scheduled with course C115F. S/U or letter grading.

C261D. Art in Modern China. (4) Lecture, three hours. Concentrated look at major schools and masters of Chinese art from turn of 20th century to present, with focus on interaction with foreign cultures and issues of self-identity, assimilation, modernity, tradition, and continuity. Consideration of recent developments in Chinese art in global context. Concurrently scheduled with course C115G. S/U or letter grading.

C261E. Selected Topics in Chinese Art. (4) Lecture, three hours. Variable topics in Chinese art that reflect interests of individual regular and/or visiting faculty members. Concurrently scheduled with course C115I. S/U or letter grading.

M262A. Topics in Asian Archaeology. (4) (Same as Anthropology M216.) Lecture, three hours. Designed for graduate students. Topics may include identification of ethnic groups in archaeology, archaeology of religion, archaeological reflections of commerce and trade and their influence on social development, archaeology of language dispersal, cultural contact and nature of cultural "influence." Letter grading.

265. Fieldwork in Archaeology. (2 to 8) Fieldwork, to be arranged. Participation in archaeological excavations or other archaeological research under supervision of staff. May be repeated for credit with consent of adviser. S/U or letter grading.

M270. Art Law. (4) (Same as Law M301.) Lecture, three hours. Knowledge of fine arts, arts management, or international law desirable. Limited enrollment; management and art history students may cross-register with consent of instructors. Legal issues related to fine arts. Consideration of U.S. domestic law as well as international treaties and foreign law in addressing such controversial issues as international trade in art, art in public places, and moral rights. Distinguished guest speakers and one field trip. S/U or letter grading.

C271A-C271B-C271C. History of Photography. (4-4-4) Lecture, three hours; discussion, one hour. Concurrently scheduled with courses C171A-C171B-C171C. S/U or letter grading. **C271A.** 1839 to 1910. Study of origin, social functions, and development of photography in 19th and early 20th centuries, from Niépce to Atget. **C271B.** 1910 to Present. History of photography in 20th century, with special attention to photography's entrance into project of avant-garde and its role in formation of postmodern aesthetic. **C271C.** Selected Topics. Variable topics in history of photography that reflect interests of individual regular and/or visiting faculty members.

272. History and Theory of Photography. (4) Seminar, three hours. Selected topics in photography history, criticism, and theory. S/U or letter grading.

C280A. Art and Empire. (4) Lecture, three hours. Examination of relationship between art and imperial ideologies and introduction to current issues in colonial studies and postcolonial criticism. Concurrently scheduled with course C180A. Letter grading.

C280B. Modernism and Mankind. (4) Lecture, three hours. Study of links between modern anthropology and early 20th-century artistic movements, drawing on ethnography, art criticism, aesthetic theory, and specific museum and exhibition debates. Concurrently scheduled with course C180B. Letter grading.

C280C. Modern and Contemporary South Asian Art. (4) Lecture, three hours. Topics in modern and contemporary South Asian art from 1900 to present. Concurrently scheduled with course C180C. Letter grading.

280D. Problems in Postcolonial Criticism. (4) Seminar, three hours. Advanced study of current theoretical debates concerning colonial and postcolonial history and society. Letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Teaching Art History. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Designed for graduate students. Required of all new teaching assistants during Fall Quarter of their teaching assistant appointment. Workshop/seminar in teaching techniques and pedagogical issues, consisting of readings, discussions, and guest speakers on selected topics. May not be applied toward M.A. or Ph.D. course requirements. S/U grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. Directed Individual Study or Research. (2 to 8) Tutorial, to be arranged. May be repeated for credit with consent of adviser. S/U or letter grading.

597. Preparation for M.A. Comprehensive Examination or Ph.D. Qualifying Examinations. (2 to 12) Tutorial, to be arranged. S/U grading.

598. Research for and Preparation of M.A. Thesis. (2 to 12) Tutorial, to be arranged. S/U grading.

599. Research for and Preparation of Ph.D. Dissertation. (2 to 12) Tutorial, to be arranged. S/U grading.

ARTS AND ARCHITECTURE

School of the Arts and Architecture

UCLA
2200 Broad Art Center
Box 951620
Los Angeles, CA 90095-1620
(310) 206-3564
fax: (310) 825-7917
e-mail: students@arts.ucla.edu
http://www.arts.ucla.edu

Scope and Objectives

There is no major in arts and architecture; however, the following courses are part of the schoolwide curriculum.

Arts and Architecture

Lower Division Course

10. Arts Encounters: Exploring Arts Literacy in 21st Century. (5) Lecture, four hours; discussion, one hour; field trips, three hours; outside study, seven hours. Through series of direct encounters with art

and artists across global range of practices, course equips students with kinds of critical skills that enhance their understanding of, and sharpen their appetite for, wide range of artistic practices. Attendance at performance/art events outside normal class schedule is mandatory. P/NP or letter grading.

Upper Division Courses

100. Selected Topics in Arts. (4) Lecture, four hours; discussion and/or laboratory, three hours; outside study, five hours. Selected topics in arts explored through variety of approaches that may include projects, readings, discussion, research papers, and oral presentations. Topics announced in advance. May be repeated for maximum of 8 units. P/NP or letter grading.

101. Aesthetics of Multimedia. (4) Lecture, three hours; laboratory, one hour; outside study, eight hours. Arts stand at expressive center of new forms of digital expression described as "multimedia." Historical roots of this new expression traced over 1,500 years of world culture as preparation for collaborative multimedia student projects. Letter grading.

102SL. ArtsBridge. (4) Seminar, three hours; site and peer school visits, three hours; outside study, six hours. Limited to ArtsBridge Program students. Community learning course with focus on arts education in inner-city settings. Study of core issues in creativity and social justice as students develop, implement, and assess original community learning projects in inner-city schools. Collaboration with partner schools in planning, teaching, and evaluation of arts education programs in dance, visual arts, architecture, design/media arts, and ethnomusicology. Linked to UCLA Arts Bridge Program that mentors students to partner with community schools through arts. May be repeated for maximum of 8 units. P/NP or letter grading.

192SL. ArtsBridge Undergraduate Practicum. (2 to 4) Seminar, three hours; practicum, three hours; outside study, six hours. Enforced requisite: course 102SL. Limited to juniors/seniors. Training and supervised practicum for advanced undergraduate students participating in School of Arts and Architecture ArtsBridge Program. Students implement and evaluate original arts education programs under guidance of faculty members in small course settings. May be repeated for credit without limitation with consent of instructor. P/NP or letter grading.

ASIAN AMERICAN STUDIES

College of Letters and Science

UCLA
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Los Angeles, CA 90095-7225
(310) 267-5592
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http://www.asianam.ucla.edu

Lane Ryo Hirabayashi, Ph.D., *Chair*
Jinqi Ling, Ph.D., *Vice Chair*

Professors

Mitchell J. Chang, Ph.D.
King-Kok Cheung, Ph.D.
C. Cindy Fan, Ph.D.
Lane Ryo Hirabayashi, Ph.D. (*George T. and Sakaye I. Aratani Professor of Japanese American Internment, Redress, and Community*)
Marjorie Kagawa-Singer, R.N., Ph.D.
Jerry Kang, J.D. (*The Korea Times Hankook Ilbo Professor of Korean American Studies*)
Valerie J. Matsumoto, Ph.D.
Robert A. Nakamura, M.F.A. (*UCLA Alumni and Friends of Japanese Ancestry Professor of Japanese American Studies*)
Paul M. Ong, Ph.D.

Shu-mei Shih, Ph.D.
 Lois M. Takahashi, Ph.D.
 Min Zhou, Ph.D. (*Walter and Shirley Wang Professor of U.S./China Relations and Communications*)

Professors Emeriti

Snehendu B. Kar, Dr.P.H., M.Sc.
 Don T. Nakanishi, Ph.D.

Associate Professors

Victor Bascara, Ph.D.
 Clara Chu, Ph.D.
 Gilbert C. Gee, Ph.D.
 Grace Kyungwon Hong, Ph.D.
 Vinay Lal, Ph.D.
 Anna S. Lau, Ph.D.
 Jinqi Ling, Ph.D.
 David Wong Louie, M.F.A.
 Purnima Mankekar, Ph.D.
 Ailee Moon, Ph.D.
 Vinit Mukhija, Ph.D.
 Thu-huong Nguyen-vo, Ph.D.
 Kyeyoung Park, Ph.D.

Assistant Professors

Lucy San Pablo Burns, Ph.D.
 Keith Lujan Camacho, Ph.D.

Lecturers

Glenn K. Omatsu, M.A.
 Duong Pham, Ph.D.

Adjunct Professor

Russell C. Leong, M.F.A.

Adjunct Assistant Professor

Tritia Toyota, Ph.D.

Scope and Objectives

The Asian American Studies Department promotes the study of Asian Americans and Pacific Islanders in the U.S. from several disciplines. An undergraduate major leading to a B.A. degree is available for those students who wish to pursue their studies about Asian Pacific Americans in more depth, while the graduate program leads to the M.A. degree. Students enrolled in an organized undergraduate major other than Asian American Studies may pursue a minor in the field.

A major goal of the department is to communicate the experiences of Asian Pacific Americans as an ethnic group. Courses examine the important issues and concerns of Asian Pacific Americans, including their history, community, and culture.

Asian American studies is a specialized field of intellectual inquiry in higher education that examines the diverse experiences of Asian-ancestry and Pacific Islander Americans, including their histories, communities, cultures, socioeconomic mobility, and political participations, and their relationships with ancestral homelands and other Asian diasporas.

Interdisciplinary scholarship has from the outset been the cornerstone of the field, but Asian American studies also seeks to interrogate disciplinary boundaries by adopting comparative and cross-disciplinary or multidisciplinary perspectives to study racial and ethnic relations in America, diasporic and transnational communities, U.S.-Asian relations, and globalization.

The department recognizes its vital historical and continuing linkage with the struggle for the civil rights and social justice of people of color and other disadvantaged social groups. Faculty

members are committed to offering a curriculum that embraces the historical and contemporary realities of Asian Americans and Pacific Islanders, supporting research that promotes equality, encouraging community services, and making higher education more inclusive and responsive to American diversity.

The department equips students with theoretical, methodological, and practical knowledge, as well as analytical and communication skills needed to be successful in American society while creating a nurturing environment for faculty, students, and staff in their interdepartmental and extramural collaborations and activities. It aims to build on UCLA's preeminence and to strengthen its position as the national leader in Asian American studies.

The department also is enhanced by its connection to and interaction with the Asian American Studies Center. Established in 1969, the center has been widely recognized as one of the world's top Asian American studies institutions.

The undergraduate and graduate programs aim to enhance and infuse the UCLA curriculum with an interdisciplinary understanding of the Asian American experience to promote innovative research and cutting-edge scholarship in Asian American studies, provide leadership training to individuals interested in working in Asian American communities, and prepare students for advanced study in the humanities, social sciences, and professional disciplines.

Undergraduate Study

Asian American Studies B.A.

The B.A. program in Asian American Studies provides a general introduction for students who anticipate advanced work at the graduate level or careers in research, public service, and community work related to Asian Pacific Americans. An overall grade-point average of 2.0 or better is required for admission to the major.

Preparation for the Major

Required: Asian American Studies 10 or 10W, and 20.

Transfer Students

Transfer applicants to the Asian American Studies major with 90 or more units must complete as many of the following courses as possible prior to admission to UCLA: two lower division Asian American studies courses or two courses that focus on Asian Americans, and one year of proficiency in an Asian language.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: A total of 13 upper division courses, including one research methods course, two Asian American theme courses, two Asian American or Pacific Islander populations and communities courses, and five Asian American studies elective courses. In addition, three upper

division courses (12 to 15 units) must be taken from disciplines outside Asian American studies, including (1) one race, ethnicity, or interethnic relations course, (2) one gender and/or sexuality course, and (3) one non-language course on the history, culture, political, and/or social institutions of Asia. The three additional courses must be selected from the approved list of courses available in the Student Advising Office each term or at <http://www.asianam.ucla.edu>.

Students must also (1) demonstrate proficiency equivalent to the completion of an elementary one-year course of study in an Asian language prior to graduation or (2) take one of the following writing courses: Asian American Studies 101, English Composition 100W, 129A through 129D, 131A through 131D, 132A through 132D.

No more than 12 graded units of Asian American Studies 195, 197, 198, and 199 may be applied toward the major. Courses 192 and 196 may not be applied toward the major.

Each course applied toward the major must be taken for a letter grade (courses offered only on a P/NP grading basis are acceptable), and each must be at least 4 units.

Honors Program

Admission

The honors program is open to junior and senior Asian American Studies majors who have (1) 90 or more total units, (2) a grade-point average of 3.5 or better in upper division Asian American studies courses and an overall cumulative GPA of 3.0 or better, and (3) completed two lower division Asian American studies courses and one upper division research methods course selected from a list maintained in the Student Advising Office. Applications must be submitted no later than the end of the fifth week of classes during Winter Quarter each academic year. For application forms and further information, contact the undergraduate counselors.

Requirements

Honors students must take Asian American Studies 198A during Spring Quarter of the junior year. During Fall and Winter Quarters of the senior year, they take courses 198B and 198C, in which they write a thesis or its equivalent under the direction of a faculty member.

Asian American Studies Minor

The Asian American Studies minor is designed for students who wish to gain understanding of and competence in Asian American studies.

To enter the minor, students must have an overall grade-point average of 2.0 or better, have completed two lower division Asian American studies courses, and file a petition with the undergraduate counselors, Asian American Studies Center, 3230 Campbell Hall.

Required Lower Division Courses (10 units): Asian American Studies 10 or 10W, and 20.

Required Upper Division Courses (20 units): One Asian American theme course, one Asian American or Pacific Islander populations and communities course, and three Asian American studies elective courses.

No more than 4 graded units of Asian American Studies 195, 197, and 199 may be applied toward the minor. Courses 192 and 196 may not be applied toward the minor. Only courses in the department or those multiple-listed with the department may be taken to fulfill requirements for the minor.

Each minor course must be taken for a letter grade (courses offered only on a P/NP grading basis are acceptable), each must be at least 4 units, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Asian American Studies offers the Master of Arts (M.A.) degree in Asian American Studies. Two concurrent degree programs (Asian American Studies M.A./Public Health M.P.H. and Asian American Studies M.A./Social Welfare M.S.W.) are also offered.

Asian American Studies

Lower Division Courses

10. History of Asian Americans. (5) Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course 10W. Multidisciplinary examination of history of Asians and Pacific Islanders in U.S. P/NP or letter grading.

10W. History of Asian Americans. (5) Lecture, three hours; discussion, two hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 10. Multidisciplinary examination of history of Asians and Pacific Islanders in U.S. Satisfies Writing II requirement. Letter grading.

20. Contemporary Asian American Communities. (5) Lecture, three hours; discussion, one hour. Multidisciplinary introduction to contemporary Asian American populations and communities in U.S. Topics include contemporary immigration, demographic trends, sociocultural, economic, and political issues, and interethnic relations. P/NP or letter grading.

30. Asian American Literature and Culture. (5) Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course 30W. Multidisciplinary introduction to Asian American literature and cultural production, with examination of some combination of novels, short stories, poetry, drama, performance, film, visual art, music, and/or new media. P/NP or letter grading.

30W. Asian American Literature and Culture. (5) Lecture, three hours; discussion, two hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students

with credit for course 30. Multidisciplinary introduction to Asian American literature and cultural production, with examination of some combination of novels, short stories, poetry, drama, performance, film, visual art, music, and/or new media. Satisfies Writing II requirement. Letter grading.

50. Asian American Women. (5) Lecture, three hours; discussion, one hour. Overview of history of feminist theory and intersection of gender, class, race/ethnicity from cross-cultural perspectives, with focus on Asian American women's lived experiences in U.S. Topics include Asian American women's roles in family life, work, community organization, social change, and cultural creativity. Examination of broader structural forces that affect women in society, such as racialization, immigration, global capitalism, colonialism and postcolonialism, and social movements. P/NP or letter grading.

97. Variable Topics in Asian American Studies. (1 to 2) Tutorial, one to two hours. Current topics and particular research methods in Asian American studies through readings and other assignments. May be repeated for credit. P/NP grading.

Upper Division Courses

101. Academic Writing in Asian American Studies. (4) Lecture, three hours. Requisites: courses 10 or 10W, and 20. Designed for advanced junior/senior Asian American Studies majors and minors. Advanced study of academic writing in specific Asian American studies subfields, with focus on development and analysis of proposals, reports, and academic journal articles (including literary essays and/or social sciences research papers) in common discursive forms, stylistic patterns, and research practices in given subfield. Themes and focus vary by term. Independent research related to course objective may be pursued with guidance from instructor. Sharing and critiquing of other student works in progress. P/NP or letter grading.

103. Social Science Research Methods. (4) Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Introduction to fundamentals of conducting social research on Asian Americans, providing experience in using some research methods and exercises in evaluating nature and quality of scientific research on Asian American issues. P/NP or letter grading.

104A. Field Studies Methods in Asian Pacific Communities. (4) Lecture, three hours. Preparation: one course from 101 through M191F. Development of community profiles on Asian Pacific American communities of students' choice, using various field studies techniques of data collection. P/NP or letter grading.

104B. Internships in Asian Pacific Communities. (4) Fieldwork, eight hours minimum. Requisite: course 104A or another Asian American studies course (except 199). Integrates academic and empirical work by providing students challenge of performing public service and community work in Asian Pacific or other multicultural communities, and of bringing their ongoing internship experiences back to classroom. P/NP grading.

105. Historical Research Methods. (4) Seminar, three hours. Requisite: course 10. Introduction to methods used to locate and analyze source materials for research on Asian American history. Historians have used wide range of sources that may include archival materials, oral history, material culture, and more. P/NP or letter grading.

M108. Policy, Planning, and Community. (4) (Same as Urban Planning M122.) Lecture, three hours; field laboratory. Project-oriented methods course on conducting needs assessment in Asian American communities. Geographic information systems to be used to define problems and needs. Letter grading.

111. Asian Americans and War. (4) Lecture, three hours. Interdisciplinary examination of role that war has played in history and culture of Asian Americans, drawing on diverse set of materials ranging from Asian American literature, Hollywood movies, and wartime propaganda to political speeches, Supreme

Court decisions, and protest culture, to evaluate relationship between Asian American communities and geopolitical conflicts from late-19th century to contemporary period. P/NP or letter grading.

M112A. Asian American Literature to 1980. (5) (Same as English M102A.) Lecture, four hours. Requisite: English Composition 3 or 3H. Survey of Asian American literature from early period of formation to cultural nationalist movement of late 1960s and 1970s. Works of such authors as Edith Eaton, Carlos Bulosan, Hisaye Yamamoto, Louis Chu, and Maxine Hong Kingston included. P/NP or letter grading.

M112B. Asian American Literature since 1980. (5) (Same as English M102B.) Lecture, four hours. Requisite: English Composition 3 or 3H. Survey of contemporary Asian American literature with emphasis on its growing ethnic diversity following influx of new immigrants. Works of such authors as Theresa Cha, Bharati Mukherjee, David Wong Louie, Garrett Hongo, and Jessica Hagedorn included. P/NP or letter grading.

112C. Asian American Creative Writing. (4) Seminar, four hours. Enforced requisite: English Composition 3 or 3H. Designed for juniors/seniors. Examination of margin of geographic and psychic spaces that Asian Americans inhabit outside American mainstream and specific factors, such as generation, ethnicity, gender, class, and sexual orientation, that shape individual's unique margin. Balanced blend of reading and creative writing. P/NP or letter grading.

113. Asian Americans and Law. (4) Lecture, four hours. Survey of major federal and California case and legislative law directed specifically toward Asian Americans from 1850 to World War II and incarceration. Major subject areas include anti-Asian labor legislation, legal prohibitions against Asians' right to testify, Executive Order 9066, and equal educational opportunity for Asians. P/NP or letter grading.

M114. Asian American Education and Schooling. (4) (Same as Education M103.) Seminar, four hours. Examination of existing body of research from various disciplines on Asian/Pacific American educational experiences. Letter grading.

115. Women and Community in Asian American Studies. (4) Lecture, three hours. Condition of Asian women in America. Topics include women in Asian American history, racial and cultural stereotypes, and contemporary issues. Methodological approaches to study of gender issues presented and evaluated. P/NP or letter grading.

M116. Asian American Social Movements. (4) (Same as Labor and Workplace Studies M116.) Lecture, three hours. Designed for juniors/seniors. Examination of several dimensions of Asian American social movements, including grassroots, mass movement character, political and social vision, and social and political relevance to current issues. How movement participants linked struggle for change with own personal transformation and growth. P/NP or letter grading.

M117. Asian American Personality and Mental Health. (4) (Same as Psychology M107.) Lecture, three hours. Requisite: Psychology 10. Foundations of personality development and mental health among Asian Americans. Topics include culture, family patterns, achievements, stressors, resources, and immigrant and minority group status. P/NP or letter grading.

M119. Asian American and Pacific Islander Labor Issues. (4) (Formerly numbered 119.) (Same as Labor and Workplace Studies M119.) Lecture, three hours. Examination of historical and contemporary labor issues in Asian and Pacific Islander American communities, with emphasis on key role that Asian and Pacific Islander American students can play in supporting labor struggles of low-income immigrants. P/NP or letter grading.

120. Asian American History through Lens. (4) Lecture, three hours. Exploration of documentary film, both as genre and as vehicle to present Asian American perspectives on history of Asian American individuals, communities, and cultures. P/NP or letter grading.

121. Exploring Asian American Theater. (4) Lecture, four hours. Study of Asian American plays; students required to compose one act based on their own experience using lessons learned in class. Exploration of scene study and acting exercises. P/NP or letter grading.

122A. Indigeneity, Empire, and Resistance in Pacific Islands. (4) Lecture, three hours. Introduction to indigenous and colonial histories of Pacific Islands. Discussions, film screenings, guest speakers, and reading assignments, with focus on issues of cultural survival, empire, indigeneity, migration, resistance, sovereignty, and war. P/NP or letter grading.

122B. Gender and Film in Pacific. (4) Lecture, three hours. Requisite: course 122A. Exploration of rise of film in Pacific Islands during 20th century, with attention to politics of gender, history, and representation, to engage students in textual and visual readings of feature-length films about Pacific. Discussions, film screenings, and guest speakers, with focus on aesthetic, cultural, economic, gendered, historical, and political dimensions of films. P/NP or letter grading.

M129. Health Issues for Asian Americans and Pacific Islanders: Myth or Model? (4) (Same as Community Health Sciences M140.) Lecture, three hours; fieldwork, one hour. Introductory overview of mental and physical health issues of Asian Americans and Pacific Islanders; identification of gaps in health status indicators and barriers to both care delivery and research for these populations. Letter grading.

130A. Chinese American Experience. (4) Lecture, three hours. Not open to freshmen. Survey of immigration history, settlement patterns, and experiences of Chinese Americans. Examination of historical and contemporary sociocultural, economic, and political issues as they affect status of Chinese Americans and their community. P/NP or letter grading.

M130B. Chinese Immigrant Literature and Film. (4) (Same as Chinese M153 and Comparative Literature M171.) Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. In-depth look at Chinese immigrant experience by reading literature and watching films. Theories of diaspora, gender, and race to inform thinking and discussion of relevant issues. P/NP or letter grading.

M130C. Chinese Immigration. (4) (Same as Sociology M153.) Lecture, three hours; discussion, one hour. Survey of sociological studies of Chinese immigration, with focus on international context, organization, and institutions of Chinese America and its interactions with social environment. P/NP or letter grading.

131A. Japanese American Experience. (4) (Formerly numbered 131.) Lecture, three hours. Not open to freshmen. Survey of immigration history, settlement patterns, and experiences of Japanese Americans. Examination of historical and contemporary sociocultural, economic, and political issues as they affect status of Japanese Americans and their community. P/NP or letter grading.

131B. Japanese Americans and Incarceration. (4) Seminar, three to four hours. Requisite: course 10 or 10W. Designed for juniors/seniors. In-depth analysis of key literature about mass incarceration of Japanese Americans during 1940s. Immediate and long-range effects of internment. Emphasis on research. Original paper based on primary sources held by University of California required. Letter grading.

131C. Japanese American Resettlement. (4) Seminar, three hours. Requisite: course 10. In-depth analysis of key literature about resettlement of Japanese Americans during World War II. Development of original research paper based on primary sources. P/NP or letter grading.

132A. Korean American Experience. (4) Lecture, three hours. Not open to freshmen. Survey of immigration history, settlement patterns, and experiences of Korean Americans. Examination of historical and contemporary sociocultural, economic, and political issues as they affect status of Korean Americans and their community. P/NP or letter grading.

M132B. Korean American Literature. (4) (Same as Comparative Literature M168.) Seminar, three hours. Comprehensive introduction to Korean American literature, with emphasis on Korean American experience, problems of gender, race, and class, nationalism, generational relationships, and impact of traditional Korean culture on Korean American literature. P/NP or letter grading.

133. Pilipino American Experience. (4) Lecture, three hours. Not open to freshmen. Survey of immigration history, settlement patterns, and experiences of Pilipino Americans. Examination of historical and contemporary sociocultural, economic, and political issues as they affect status of Pilipino Americans and their community. P/NP or letter grading.

134. Vietnamese American Experience. (4) Lecture, three hours. Not open to freshmen. Survey of immigration history, settlement patterns, and experiences of Vietnamese Americans. Examination of historical and contemporary sociocultural, economic, and political issues as they affect status of Vietnamese Americans and their community. P/NP or letter grading.

141A. Asian American and Pacific Islander Leadership Development Project Part I: Leadership. (4) (Formerly numbered 118A.) Lecture, three to four hours. Limited to juniors/seniors. First term of two-term series on leadership development, with focus on intellectual and practical learning of leadership concepts, models, and skills. In Progress grading (credit to be given only on completion of course 141B).

141B. Asian American and Pacific Islander Leadership Development Project Part II: Field Studies. (4) (Formerly numbered 118B.) Lecture, three hours; fieldwork, three hours. Enforced requisite: course 141A. Limited to juniors/seniors. Second term of two-term series on leadership development, with focus on Asian American, Pacific Islander, and other ethnic communities in Los Angeles. Examination of different approaches and strategies to community building and maintenance. P/NP or letter grading.

142A. Ethnocommunications I: Introduction to Creating Community Media. (4) Seminar, three hours. Introduction to ethnocommunications theory and methodology, developed to allow diverse peoples and cultures to reclaim and promote their histories. Viewing of films from mainstream and alternative independent media for critique and discussion and basic instruction in use of digital video technology to preserve culture, communities, and experiences. P/NP or letter grading.

142B. Ethnocommunications II: Intermediate Creating Community Media. (4) (Formerly numbered 107A.) Laboratory, three hours. Continuing instruction in use of digital technology and concepts and methods of Asian Pacific American community preservation. Topics include scriptwriting, budgeting, video image and sound control through camcorder functions, basic composition/lighting, sound recording, interviewing techniques, and editing. Completion of community profile project required. P/NP or letter grading.

142C. Ethnocommunications III: Advanced Creating Community Media. (2 to 4) (Formerly numbered 107B.) Laboratory, two to three hours. Enforced requisite: course 142B. Advanced instruction in use of digital technology and concepts and methods of Asian Pacific American community preservation. Topics include scriptwriting, budgeting, video image and sound control through camcorder functions, basic composition/lighting, sound recording, interviewing techniques, and editing. Completion of community profile project required. P/NP or letter grading.

142D. Visualizing History: Introduction to Creating Community Media. (4) Laboratory, three hours. Rapid developments in video and digital technologies have made it possible for previously neglected or submerged communities to visually document issues around their migration, settlement, cultural imagery, and artistic expressions. Introduction to ethnocommunications theory and methodology, developed to allow diverse peoples and cultures to reclaim and promote their histories, experiences, and contributions through study, analysis, and vigorous usage of new media technologies. P/NP or letter grading.

143A. Fieldwork in Asian American and Pacific Islander Communities. (4) (Formerly numbered 120B.) Lecture, three hours; discussion, one hour. Introduction to qualitative research methods and application of techniques in data collection, analysis, and reporting. Critical reflection of issues related to identity, migration, multiculturalism, tourism, and indigenous rights. Field excursions and guest lecturers from local community included. Given in Hawai'i. P/NP or letter grading.

143B. Politics of Race, Ethnicity, Migration, and Multiculturalism in Hawai'i. (4) Lecture, three hours; discussion, one hour. Critical examination of historical and contemporary experiences of various people in Hawai'i. Investigation of historical, economic, and political contexts of migration and relations between indigenous peoples, migrants, and existing racial and ethnic groups. P/NP or letter grading.

143C. Ethnic Identity and Ethnic Relations in Hawai'i. (4) (Formerly numbered 120A.) Lecture, four hours. Continuing construction and expression of ethnic identity in various cultural forms and social contexts in Hawai'i. Overview of theoretical approaches to and basic concepts in study of ethnic identity and ethnic relations. Discussion of historical and contemporary aspects of ethnic identity and ethnic relations in Hawai'i. Given in Hawai'i. P/NP or letter grading.

M160. Culture, Media, and Los Angeles. (6) (Formerly numbered M160H.) (Same as Afro-American Studies M102 and Honors Collegium M102.) Lecture, four hours; screenings, two hours. Designed for juniors/seniors. Role of media in society and its influence on contemporary cultural environment, specifically in Los Angeles; issues of representation as they pertain to race, ethnicity, gender, and sexuality. P/NP or letter grading.

M161. Ethnic, Cultural, and Gender Issues in America's Healthcare Systems. (4) (Same as Health Services M110.) Lecture, three hours. Designed for juniors/seniors. Introduction to study of gender, ethnicity, and cultural diversity related to health status and healthcare delivery in U.S. Letter grading.

M163. Investigative Journalism and Communities of Color. (4) (Same as Afro-American Studies M163.) Lecture, three hours. Role of investigative journalism in understanding interethnic conflict and cooperation. Exploration of different perspectives on issues by comparing mainstream, ethnic, and alternative media coverage. P/NP or letter grading.

M164. Women, Violence, Globalization: India, Philippines, Singapore, Vietnam. (4) (Same as Women's Studies M164A.) Lecture, four hours. Study of various forms of violence done on women not only in and of themselves but in light of larger systems of oppression, with focus on Pilipino, Vietnamese, Singaporean, and South Asian cultures. Letter grading.

M165. Race, Gender, Class. (5) (Same as Comparative Literature M175.) Seminar, three hours. Theoretical and literary readings combined to explore three main aspects of social and cultural experience (race, gender, class) as separate but interconnected spheres affecting both minority and majority populations in U.S. Examination of these issues from comparative perspectives. P/NP or letter grading.

M166A. Immigrant Rights, Labor, and Higher Education. (4) (Same as Chicana and Chicano Studies M156A and Labor and Workplace Studies M166A.) Seminar, three hours. New immigrant rights movement, with particular attention to labor and higher education. Overview of history of immigrant rights movement and examination of development of coalition efforts between labor movement and immigrant rights movement nationally and locally. Special focus on issue of immigrant students in higher education, challenges facing undocumented immigrant students, and legislative and policy issues that have emerged. Students conduct oral histories, family histories, research on immigration and immigrant rights, write poetry and spoken word about immigrant experience, and work to collectively develop student publication on immigrant students in higher education. P/NP or letter grading.

M166B. Research on Immigration Rights, Labor, and Higher Education. (4) (Same as Chicana and Chicano Studies M156B and Labor and Workplace Studies M166B.) Seminar, two hours. Prerequisite: course M166A. Expansion of research conducted by students in course M166A involving oral histories, research on immigration/labor/higher education, and evaluation of legislation and legal issues impacting undocumented students. Letter grading.

M166C. Worker Center Movement: Next Wave Organizing for Justice for Immigrant Workers. (4) (Same as Afro-American Studies M167, Chicana and Chicano Studies M130, and Labor and Workplace Studies M167.) Seminar, three hours. Development of theoretical and practical understanding of worker center movement, with focus on historical factors that have led to emergence and growth of worker centers. Role of worker centers in promoting multiethnic and multiracial campaigns for workplace and economic justice. Transnational cross-border solidarity issues and rights of undocumented workers. P/NP or letter grading.

M168. Student-Initiated Retention and Outreach Issues in Higher Education. (4) (Same as Afro-American Studies M118, American Indian Studies M118, and Chicana and Chicano Studies M118.) Lecture, four hours. Exploration of issues in outreach and retention of students in higher education, especially through student-initiated programs, efforts, activities, and services, with focus on UCLA as case. May be repeated twice for credit. Letter grading.

M169. Constructing Race. (4) (Same as Afro-American Studies M159P and Anthropology M159P.) Lecture, three hours. Examination of race, socially constructed category, from anthropological perspective. Consideration of development of racial categories over time and in different regions, racial passing, multiracial identity in U.S., whiteness, race in popular culture, and race and identity. P/NP or letter grading.

170. Transnational Perspectives on Asian America. (4) Lecture, three hours. Recommended preparation: background in Asian Pacific American social and legal history. Designed for juniors/seniors. Examination of transformations that have occurred in Asian America in last four decades as consequence of global economic restructuring and new immigration. Introduction to and survey of new frameworks for understanding these changes in postmodern Asian Pacific American communities, using theories of transnationalism and Asian American political and racial history. Readings and discussion on transnational aspects of wide range of historical and contemporary topics in context of Asia/Asian American experience. Building of linkages between roots of social constructions of race and multisited social processes that now constitute globalizing Asian America. Theoretical readings assigned. P/NP or letter grading.

171A. Critical Issues in U.S.-China Relations. (4) Lecture three hours. Not open to freshmen. Critical examination of U.S. involvement in China, Hong Kong, and Taiwan, including study of historical, cultural, political, and socioeconomic factors that shape relations between China, Hong Kong, and Taiwan and U.S. Examination of impact of relationships in Pacific Rim and Chinese Americans and their communities. P/NP or letter grading.

171B. Critical Issues in U.S.-Japan Relations. (4) Lecture, three hours. Not open to freshmen. Critical examination of U.S. involvement in Japan, including study of historical, cultural, political, and socioeconomic factors that shape relations between Japan and U.S. Examination of impact of relationships in Pacific Rim and Japanese Americans and their communities. P/NP or letter grading.

171C. Critical Issues in U.S.-Korea Relations. (4) Lecture, three hours. Not open to freshmen. Critical examination of U.S. involvement in Korea, including study of historical, cultural, political, and socioeconomic factors that shape relations between Korea and U.S. Examination of impact of relationships in Pacific Rim and Korean Americans and their communities. P/NP or letter grading.

M171D. Critical Issues in U.S.-Philippine Relations. (4) (Same as History M144C.) Lecture, three hours; discussion, one hour (when scheduled). Recommended preparation: History 176A, 176B, 176C. Designed for juniors/seniors. Examination of complex interrelationship between U.S. colonialism, Philippine nationalism, history of Filipino Americans, and Philippine diaspora in 20th century. P/NP or letter grading.

171E. Critical Issues in U.S.-Vietnam Relations. (4) Lecture, three hours. Not open to freshmen. Critical examination of U.S. involvement in Vietnam, including study of historical, cultural, political, and socioeconomic factors that shape relations between Vietnam and U.S. Examination of impact of relationships in Pacific Rim and Vietnamese Americans and their communities. P/NP or letter grading.

M172A. Indian Identity in U.S. and Diaspora. (4) (Formerly numbered M172.) (Same as History M175B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. History of overseas Indian communities; transformations of Hinduism in diaspora; emergence of new diasporic art forms such as bhangra rap and chutney music; relations between Indians and other racial and ethnic groups; Indian women as embodiment of Indian culture; diasporic identities. P/NP or letter grading.

172B. Gender in South Asian Communities at Home and Abroad. (4) Seminar, three hours. Examination of centrality of gender to histories and identities of men and women of South Asian affiliation across multiple historical and geopolitical contexts. Focus on colonial South Asia, South Asian diasporas in U.K., South Asian Americans in U.S., and transnational South Asian public cultures. Theoretical approaches to study of South Asians in comparative frame and consideration of how transnational perspectives enable revisioning South Asian American experiences and to rethink relationship between Asian American studies, diaspora studies, and area studies. P/NP or letter grading.

172C. Transnational Bollywood. (4) (Formerly numbered 172B.) Lecture, three hours. Study of how popular Bollywood cinema materializes colonial and post-colonial formations pertaining to gender, class and caste, sexuality, race, and economic liberalization in South Asia, as well as across South Asian communities in North America, U.K., and Africa. Examination of how complex relationships between Bollywood and transnational South Asian diasporas enable us to better understand South Asian American communities. P/NP or letter grading.

M173. Topics in Vietnamese Cinema and/or Literature. (4) (Same as Vietnamese M155.) Lecture, three hours; discussion, one hour. Knowledge of Vietnamese not required. Critical and historical examination of literary and/or filmic representations connected to social practices such as empire, nation, diaspora, and globalization. Original language course materials available for interested students. P/NP or letter grading.

187A. Special Courses in Research Methodologies. (4) Lecture, three hours; discussion, one hour (when scheduled). Limited to juniors/seniors. Variable topics in multidisciplinary research methodologies in Asian American studies. May be repeated for credit with topic change. P/NP or letter grading.

187B. Special Courses in Asian American Themes. (4) Lecture, three hours; discussion, one hour (when scheduled). Limited to juniors/seniors. Variable topics in selected Asian American themes, including issues in cultural formation, religion, education, social class, economic development, social movement, politics, and public policy. May be repeated for credit with topic change. P/NP or letter grading.

187C. Special Courses in Asian American Populations and Communities. (4) Lecture, three hours; discussion, one hour (when scheduled). Limited to juniors/seniors. Variable topics in historical and contemporary issues pertaining to different Asian-origin subgroups and their respective communities. May be repeated for credit with topic change. P/NP or letter grading.

187D. Special Courses in Comparative Race, Ethnicity, Gender, and Sexuality. (4) Lecture, three hours; discussion, one hour (when scheduled). Limited to juniors/seniors. Variable topics in selected issues on race, ethnicity, gender, and sexuality from comparative perspective. May be repeated for credit with topic change. P/NP or letter grading.

187E. Special Courses in Transnationalism and Diasporas. (4) Lecture, three hours; discussion, one hour (when scheduled). Limited to juniors/seniors. Variable topics in selected comparative and international issues pertaining to transnationalism and diasporas. May be repeated for credit with topic change. P/NP or letter grading.

191A. Topics in Research Methodologies. (4) Seminar, three to four hours. Limited to juniors/seniors. Variable topics in multidisciplinary research methodologies in Asian American studies. May be repeated for credit with topic change. P/NP or letter grading.

191B. Topics in Asian American Themes. (4) Seminar, three to four hours. Limited to juniors/seniors. Variable topics in selected Asian American themes, including issues in cultural formation, religion, education, social class, economic development, social movement, politics, and public policy. May be repeated for credit with topic change. P/NP or letter grading.

191C. Topics in Asian American Populations and Communities. (4) Seminar, three to four hours. Limited to juniors/seniors. Variable topics in historical and contemporary issues pertaining to different Asian-origin subgroups and their respective communities. May be repeated for credit with topic change. P/NP or letter grading.

191D. Topics in Comparative Race, Ethnicity, Gender, and Sexuality. (4) Seminar, three to four hours. Limited to juniors/seniors. Variable topics in selected issues on race, ethnicity, gender, and sexuality from comparative perspective. May be repeated for credit with topic change. P/NP or letter grading.

191E. Topics in Transnationalism and Diasporas. (4) Seminar, three to four hours. Limited to juniors/seniors. Variable topics in selected comparative and international issues pertaining to transnationalism and diasporas. May be repeated for credit with topic change. P/NP or letter grading.

M191F. Topics in Asian American Literature. (5) (Same as English M179C.) Seminar, three hours. Enforced prerequisite: English Composition 3 or 3H. Variable specialized studies course in Asian American literature. Topics include specific genres (autobiography, poetry, or drama); specific nationalities within Asian American community; and themes related to such problems as generational differences, gender politics, or interethnic encounters. Reading, discussion, and development of culminating project. May be repeated for credit with topic change. P/NP or letter grading.

192. Undergraduate Practicum in Asian American Studies. (2 or 4) Seminar, two or four hours. Limited to juniors/seniors. Training and supervised practicum for advanced undergraduate students in Asian American studies courses. Students assist in preparation of materials and development of innovative programs with guidance of faculty members in small course settings. May not be applied toward departmental major or minor requirements. May be repeated for credit. P/NP grading.

195. Community or Corporate Internships in Asian American Studies. (4) Tutorial, two hours; fieldwork, eight hours. Prerequisites: courses 10 or 10W, and 20. Limited to juniors/seniors. Internship in supervised setting in community agency or business. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for credit. Individual contract with supervising faculty member required. P/NP or letter grading.

196. Research Apprenticeship in Asian American Studies. (2 to 4) Tutorial, three hours per week per unit. Limited to juniors/seniors. Entry-level research apprenticeship for upper division students under guidance of faculty mentor to learn skills and techniques.

May not be applied toward departmental major or minor requirements. May be repeated for credit. Individual contract required. P/NP grading.

197. Individual Studies in Asian American Studies. (2 to 4) Tutorial, three hours. Prerequisites: course 10 or 10W or 20 or comparable knowledge in Asian American studies, 3.0 grade-point average or better. Limited to juniors/seniors. Directed reading of scholarly work or supervised research between student and faculty member. No original research or project expected, but tangible evidence of mastery of subject matter required. May be repeated for maximum of 8 units. Individual contract required. P/NP or letter grading.

198A. Honors Research in Asian American Studies. (4) Tutorial, three to four hours. Prerequisites: two courses from 10 (or 10W), 20, and 30 (or 30W) and one course from 104A through M108, 187A, or 191A. Introduction to research techniques and applications of methodologies in study of Asians and Pacific Islanders in U.S. Development of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for credit. Individual contract required. Letter grading.

198B-198C. Honors Research in Asian American Studies. (4-4) Tutorial, three hours. Prerequisite: course 198A. Course 198B is requisite to 198C. Development and completion of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for credit. Individual contract required. In Progress (198B) and letter (198C) grading.

199. Directed Research or Senior Project in Asian American Studies. (2 to 4) Tutorial, three hours. Preparation: 3.0 overall grade-point average. Prerequisites: courses 10 (or 10W) and 20 or comparable knowledge in Asian American studies. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating research paper or project report required. May be repeated for maximum of 8 units. Individual contract required. P/NP or letter grading.

Graduate Courses

200A. Critical Issues in Asian American Studies. (4) Seminar, three hours. Designed for graduate students. Examination and development of critical appreciation of research literature on Asians in America and development of alternative interpretations of Asian American experience. Topics include Asian American history and economic/political and social/psychological issues. S/U or letter grading.

200B. Critical Issues in Asian American Communities. (4) Lecture, three hours. Designed for graduate students. Evaluation of traditional and contemporary theories and models of community for their appropriateness to understanding Asian Pacific American communities. Consideration of specific topics that explicate development, structure, and dynamics of Asian Pacific American communities in studying community issues and concerns. S/U or letter grading.

200C. Critical Issues in Asian American Studies Research. (4) Seminar, three hours. Designed for graduate students. Critical review of research methods, strategies, and philosophies in Asian American studies. S/U or letter grading.

200D. Asian American Literature and Culture. (4) Seminar, three hours. Examination of questions arising from Asian American literary and cultural criticism from mid-1980s to present, with focus on assumptions, possibilities, and limitations of certain theoretical perspectives and positions that have become important in Asian American critical practice. S/U or letter grading.

203. Asian American Research Methods. (4) Seminar, three hours. Introduction to empirical research methods, stressing uses and relevancy in research with ethnic minority populations. Review of characteristics and logical processes of research and applicability of scientific and scholarly inquiry in advancing knowledge. S/U or letter grading.

M215A-215B. Asian American Jurisprudence. (3 to 6, 1 to 6) (Formerly numbered M215.) (Same as Law M315.) Lecture, three hours. Course M215A is enforced requisite to 215B. Designed for graduate students. Through judicial opinions, commentary, and historical readings, examination of how American law has shaped demographics, experiences, and possibilities of Asian Americans and also how they shaped American law as well. In Progress (M215A) and S/U or letter (215B) grading.

222. Colonialism and Law in Pacific. (4) Seminar, three hours. Reading seminar on broad topics of colonialism and law. Survey of anthropological, historical, and legal studies of ways in which colonialism and law operate as methods of social control, order, and surveillance in Asia and Pacific. S/U or letter grading.

231. Japanese American Resettlement: Meaning and Methods. (4) Seminar, three hours. Designed for graduate students. In-depth analysis of multiple dimensions of Japanese American post-World War II resettlement and research methods needed to study resettlement holistically. S/U or letter grading.

M239. Race and Ethnicity as Concept in Practice and Research. (4) (Same as Community Health Sciences M239.) Discussion, three hours. Integration of cross-cultural findings in healthcare with current American (U.S.) healthcare system paradigms to facilitate designing culturally based public health programs and train culturally competent practitioners. Letter grading.

M260. Topics in Asian American Literature. (4) (Same as English M260A.) Seminar, three hours. Graduate seminar that examines and critically evaluates writings of Asian Americans. May be repeated for credit. S/U or letter grading.

M261. Theorizing Third World. (4) (Same as Comparative Literature M274.) Seminar, three hours. Investigation of politics of power, gender, and race in complex relationships between so-called First World and Third World, using both theoretical and textual approaches. S/U or letter grading.

M290Q. Social Welfare Policy in Asian American Communities. (4) (Same as Social Welfare M290Q.) Seminar, three hours. Overview of social welfare policy in Asian American communities. Introduction to major social welfare policies and programs in U.S. and impact on Asian American communities. Policy development, approaches, processes of implementation, evaluation, and strategies to effect policy. S/U or letter grading.

297A-297Z. Topics in Asian American Studies. (4 each) Seminar, three hours. Designed for graduate students. Selected topics in Asian American studies. S/U or letter grading.

297B. Asian Migration to U.S. (4) Seminar, three hours. Emphasis on Asia as main regional source for international migrants. Topics include patterns and theories of international migration and their relevance to Asian experience, sending and receiving country perspectives, research and policy issues. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, three hours. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. Unit credit may be applied toward full-time equivalence but not toward 11-course requirement for M.A. May be repeated for credit. S/U grading.

490. Writing Workshop for Graduate Students. (2) Lecture, one hour; discussion, one hour. Practice in writing reports, grant proposals, abstracts, theses, and article-length research papers. Analyzing rhetorical and stylistic features of essays in various Asian American journals helps students improve both their prose style and editorial abilities. Four units may be applied toward M.A. degree requirements. May be repeated once for credit. S/U grading.

495. Supervised Teaching of Asian American Studies. (4) Seminar, three hours. Preparation: apprentice personnel appointment as teaching assistant in Asian American studies. Designed for graduate students. Required of all new teaching assistants. Special course for teaching assistants designed to deal with problems and techniques for teaching introductory Asian American studies courses. Unit credit may be applied toward full-time equivalence but not toward course requirements for M.A. S/U grading.

596. Directed Individual Study or Research. (2 to 8) Tutorial, to be arranged. S/U or letter grading.

597. Preparation for M.A. Comprehensive Examination. (2 to 8) Tutorial, three hours. Limited to graduate students. Preparation and research for M.A. comprehensive examination. S/U grading.

598. Research for and Preparation of M.A. Thesis. (2 to 8) Tutorial, to be arranged. Preparation of research data and writing of M.A. thesis. S/U grading.

ASIAN LANGUAGES AND CULTURES

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Kuo-yi Pao, M.A., M.S., *Emeritus*

Lecturers

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Chuc V. Bui, M.A.
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Scope and Objectives

The Department of Asian Languages and Cultures offers a wide range of courses in the languages, literatures, religions, and cultural heritage of China, Japan, and Korea, as well as South and Southeast Asia. The department offers training in many specialized fields such as archaeology, film, folklore, history, linguistics, literature, mythology, religious studies, and cultural studies. Courses prepare students for careers in business, government service, international relations, journalism, law, publishing, teaching, and academic professions.

Undergraduate majors earn a Bachelor of Arts degree. The graduate program offers Master of Arts and Ph.D. degrees. At all levels of study, various major fields are possible.

For undergraduates, the department offers majors that combine language study with courses taught in English that examine the rich cultural heritage of China, Japan, and Korea, as well as South and Southeast Asia. The majors also provide opportunities for education abroad in an Asian country. The language courses aim to develop the four skills of speaking, aural comprehension, reading, and writing in a balanced and mutually supportive manner. The lecture and seminar courses aim to develop critical thinking and writing skills through in-depth study of a culture within a broader historical and comparative context.

Undergraduate majors who wish to pursue graduate degrees are encouraged to apply for admission to the honors program.

At the graduate level, the department offers a program leading to an M.A. degree in several fields of Asian culture. The M.A. degree is preparatory to entrance into the Ph.D. program. The Ph.D. program, which is very selective, trains research scholars for academic careers in specialized fields.

Courses for Nonmajors

The department offers many courses in which knowledge of Asian languages is not required. A current list is available in the department

office (290 Royce Hall) and at <http://www.alc.ucla.edu>.

Undergraduate Study

The department offers two majors in the study of Asian cultures—B.A. in Asian Humanities and B.A. in Asian Religions—and three majors in Asian literatures—B.A. in Chinese, B.A. in Japanese, and B.A. in Korean. Each course in the majors must be taken for a letter grade.

The department also offers two minors—Asian Humanities minor and Asian Languages minor. Each course in the minors must be taken for a letter grade.

Students considering a major or minor in the department should consult the departmental undergraduate adviser as soon as possible in their University career, but in no case later than the point at which they are about to begin taking upper division courses. Students should select courses to fulfill major or minor requirements in consultation with the undergraduate adviser. The approved list of courses for each category of major or minor requirements is available in the department office (290 Royce Hall) and at <http://www.alc.ucla.edu>.

At least 24 upper division units required for the majors must be completed successfully while in residence at UCLA.

Placement in Language Courses

Students are not placed in Chinese, Japanese, and Korean language courses automatically according to their years of previous study. Students with any prior knowledge or study of an Asian language who wish to take courses in that language at UCLA are required to take the appropriate departmental language placement examination (see the *Schedule of Classes* or <http://www.alc.ucla.edu> for more information). The examination determines which course is most appropriate for the student's current level of proficiency. Students who have obtained college credit for Asian language courses may not repeat those same courses for credit. Prospective majors who place out of the upper division modern language requirement are expected to substitute an equivalent number of other units to be selected in consultation with the departmental undergraduate adviser.

Language Acquisition Courses

No credit is allowed for completing a less advanced course after successful completion of a more advanced Asian language course with focus on conversation, grammar, and/or composition.

Asian Humanities B.A.**Preparation for the Major**

Required: Completion of the intermediate sequence in one Asian language offered by the department (e.g., Chinese 6, 10, Filipino 6, Hindi-Urdu 6, Indonesian 6, Japanese 6, 10, Korean 6, 10, Thai 6, Vietnamese 6, or equivalent) and one civilization course (e.g., Chinese 50, Japanese 50, 70, Korean 50) or one introduction to religions course (e.g., Asian 60, 60W, 61, Chinese 60, 60W, Korean 60,

South Asian 60, Southeast Asian 60) within the department.

Transfer Students

Transfer applicants to the Asian Humanities major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: two years of Chinese, Japanese, Korean, Filipino/Tagalog, Hindi, Indonesian, Thai, or Vietnamese and either one civilization course on Asia or one introduction to Buddhism course or one introduction to Asian religions course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Three upper division language courses in one Asian language offered by the department and eight upper division electives within the department, including at least one course from at least four of the following areas: China, Japan, Korea, South Asia, or Southeast Asia.

Asian Religions B.A.**Preparation for the Major**

Required: Completion of the intermediate sequence in one Asian language offered by the department (e.g., Chinese 6, 10, Filipino 6, Hindi-Urdu 6, Indonesian 6, Japanese 6, 10, Korean 6, 10, Thai 6, Vietnamese 6, or equivalent) and one introduction to religions course from Asian 60, 60W, 61, Chinese 60, 60W, Korean 60, South Asian 60, or Southeast Asian 60.

Transfer Students

Transfer applicants to the Asian Religions major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: two years of Chinese, Japanese, Korean, Filipino/Tagalog, Hindi, Indonesian, Thai, or Vietnamese, or one year of Sanskrit, and one introduction to Buddhism course or one introduction to Asian religions course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Three upper division language courses in one Asian language offered by the department; six upper division Asian religions courses within the department, including at least one course each concerning religions in China, Japan, Korea, and either South Asia or Southeast Asia; and two electives within the department.

Chinese B.A.**Preparation for the Major**

Required: Chinese 6 or 10 or equivalent, and 50 or 60 or 60W.

Transfer Students

Transfer applicants to the Chinese major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: two years of Chinese and one Chinese civilization course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Five upper division Chinese language courses (of which at least two must be in the premodern language or texts), one upper division Chinese literature course, three upper division electives on China, and two upper division electives within the department outside of China.

Japanese B.A.**Preparation for the Major**

Required: Japanese 6 or 10 or equivalent, and 50 or 70.

Transfer Students

Transfer applicants to the Japanese major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: two years of Japanese and one Japanese civilization or images of Japan course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Five upper division Japanese language courses (of which at least two must be in the premodern language or texts), one upper division Japanese literature course, three upper division electives on Japan, and two upper division electives within the department outside of Japan.

Korean B.A.**Preparation for the Major**

Required: Korean 6 or 10 or equivalent, and 50 or 60.

Transfer Students

Transfer applicants to the Korean major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: two years of Korean and one Korean civilization course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Five upper division Korean language courses, one upper division Korean literature course, three upper division electives on Korea, and two upper division electives within the department outside of Korea.

Study Abroad

Early acquisition of Asian language skills aids in the timely completion of major requirements and enriches appreciation of Asian cultures. Students are encouraged, therefore, to complete up to a year of language study in approved programs of study abroad.

Honors Program**Admission**

The honors program is open to departmental majors with a 3.5 grade-point average in upper division courses in the major and a 3.0 overall GPA. Students should apply for admission by Spring Quarter of their junior year and, at the time of admission, must have completed at least two upper division courses in their major. For application forms and further information, contact the departmental undergraduate adviser.

Requirements

The honors program is a three-term sequence (Asian 198A-198B-198C), taken in addition to requirements for the major, that culminates in the submission of a 40- to 60-page thesis. In most circumstances courses 198A-198B-198C are taken in the senior year (Fall, Winter, and Spring Quarters), although students also have the option of taking course 198A in Spring Quarter of their junior year. Students are expected to use an Asian language in their research, with the scope of language work to be determined in consultation with their faculty adviser. Highest honors, honors, or no honors are awarded as determined by the faculty thesis director and the departmental honors committee.

To qualify for graduation with departmental honors, students must (1) complete all requirements for the major, (2) have a cumulative grade-point average of 3.5 or better in upper division courses required for the major and an overall GPA of 3.0 or better, and (3) complete Asian 198A-198B-198C.

To qualify for graduation with departmental highest honors, students must (1) complete all requirements for the major, (2) have a cumulative grade-point average of 3.8 or better in upper division courses required for the major and an overall GPA of 3.5 or better, and (3) complete Asian 198A-198B-198C with a grade of A in each course.

Asian Humanities Minor

The Asian Humanities minor is designed to recognize a serious commitment to the study of Asian cultures. Lower division survey courses in civilizations and religious traditions provide students with a solid foundation in the diverse cultural heritages of Asia. Students may fulfill upper division requirements from a wide variety of courses in all aspects and historical periods of Asian humanities.

To enter the minor, students must have an overall grade-point average of 2.0 or better, have completed 45 units at UCLA and all lower division requirements for the minor, and consult with the departmental undergraduate adviser.

Required Lower Division Courses (10 units): Two courses from Asian 60, 60W, 61, Chinese 50, 60, 60W, Japanese 50, 70, Korean 50, 60, South Asian 60, Southeast Asian 60.

Required Upper Division Courses (20 units): Five courses in the department concerning Asian culture (e.g., film, folklore, history, linguistics, literature, mythology, religious studies).

No more than 4 units may be applied toward both this minor and a major or minor in another department or program, and at least 16 units must be taken in residence at UCLA.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Asian Languages Minor

The Asian Languages minor is designed to recognize a serious commitment to the study of Asian languages. It is especially suited for students who wish to augment their major program in the College of Letters and Science with mastery of an Asian language. The lower division survey course in civilization or religious tradition provides students with an essential introduction to the diverse cultural heritages of Asia. The upper division language courses provide students with advanced skills in speaking, aural comprehension, reading, and writing an Asian language.

To enter the minor, students must have an overall grade-point average of 2.0 or better, have completed 45 units at UCLA and all lower division requirements for the minor, and consult with the departmental undergraduate adviser.

Required Lower Division Courses (10 units): Completion of the intermediate sequence in one Asian language offered by the department (e.g., Chinese 6, 10, Filipino 6, Hindi-Urdu 6, Indonesian 6, Japanese 6, 10, Korean 6, 10, Thai 6, Vietnamese 6, or equivalent) and one civilization course (e.g., Chinese 50, Japanese 50, 70, Korean 50) or one introduction to religions course (e.g., Asian 60, 60W, 61, Chinese 60, 60W, Korean 60, South Asian 60, Southeast Asian 60) within the department.

Required Upper Division Courses (20 units): Three language courses in one Asian language offered by the department and two electives within the department.

No more than 4 units may be applied toward both this minor and a major or minor in another department or program, and at least 16 units must be taken in residence at UCLA.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA*

Graduate Degrees, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Asian Languages and Cultures offers Master of Arts (M.A.), Candidate in Philosophy (C.Phil.), and Doctor of Philosophy (Ph.D.) degrees in Asian Languages and Cultures.

Asian

Lower Division Courses

M20. Visible Language: Study of Writing. (5) (Same as Indo-European Studies M20, Near Eastern Languages M20, Slavic M20, and Southeast Asian M20.) Lecture, three hours; discussion, one hour. Consideration of concrete means of language representation in writing systems. Earliest representations of language known are those of Near East dating to end of 4th millennium B.C. While literate civilizations of Egypt, Indus Valley, China, and Mesoamerica left little evidence of corresponding earliest developments, their antiquity and, in case of China and Mesoamerica, their evident isolation mark these centers as loci of independent developments in writing. Basic characteristics of early scripts, assessment of modern alphabetic writing systems, and presentation of conceptual basis of semiotic language representation. Origins and development of early non-Western writing systems. How Greco-Roman alphabet arose in 1st millennium B.C. and how it compares to other modern writing systems. P/NP or letter grading.

60. Introduction to Buddhism. (5) Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course 60W. Knowledge of Asian languages not required. General survey of development of Buddhism in India, with focus on those religious doctrines and meditative practices most essential to various Asian traditions of Buddhism. Letter grading.

60W. Introduction to Buddhism. (5) Lecture, three hours; discussion, one hour. Enforced prerequisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 60. Knowledge of Asian languages not required. General survey of Buddhist worldview and lifestyle, with focus on those religious doctrines and meditative practices most essential to various Asian traditions of Buddhism. Particular attention to problems involved in study of religion. Satisfies Writing II requirement. Letter grading.

61. Introduction to Zen Buddhism. (5) Lecture, three hours; discussion, one hour. Knowledge of Asian languages not required. Introduction to Zen traditions and to interplay between Zen and other fundamental cultural and religious concerns in East Asia. Topics include role of Zen within Buddhist thought and practice, artistic and literary arts, society, and daily life. Letter grading.

70A-70B-70C. Popular Culture in East Asia. (5-5-5) Lecture, three hours; discussion, one hour. Popular culture in China, Japan, Korea, and Vietnam. Topics include popular religion, language, literature, arts, material culture, cinema, and music. Themes include identities, gender, sexuality, and class relations. Letter grading. **70A.** 17th through 19th Centuries; **70B.** 1895 to 1945; **70C.** From 1945.

Upper Division Courses

120. Languages and Cultures of East Asia. (4) Lecture, three hours; discussion, one hour. Recommended preparation: Chinese 3 or 50 or Japanese 3 or 50 or Korean 3 or 50. Comparative perspective on three major East Asian languages—Chinese, Japa-

nese, and Korean—to show what they share and how they differ in terms of linguistic features, historical development, and larger cultural settings in which these three languages are used. P/NP or letter grading.

120FL. Readings in East Asian Languages. (2) Seminar, two hours. Requisite: Chinese 6 or 6A or 6C or Japanese 6 or Korean 6 or 6A. Enforced corequisite: course 120. Additional work in major East Asian languages to enrich and augment work assigned in course 120, including reading, writing, and other exercises in Chinese, Japanese, and Korean. P/NP or letter grading.

130. Ideas of Culture in East Asian Studies. (4) Lecture, three hours. Knowledge of Asian languages not required. Literature and intellectual discourse of modern Japan and Korea from 1910 to 1945. Letter grading.

151. Buddhist Literature in Translation. (4) Lecture, three hours. Recommended preparation: prior course on Buddhism or traditional Asian religions. Knowledge of Asian languages not required. Readings from variety of Buddhist literature of Indic and non-Indic origin, with emphasis on key Buddhist themes and critical issues in cross-cultural interpretations of Asian religious texts. Letter grading.

152. Tibetan Buddhism. (4) Lecture, three hours. Knowledge of Asian languages not required. Survey of thought and practices of Buddhism in Tibet from its beginnings to present. Letter grading.

161. Topics in Asian Religions. (4) Lecture, three hours. Knowledge of Asian languages not required. In-depth examination of selected topics in one or more religious traditions of Asia. Topics vary, but may include death, gender, and state and religion. May be repeated for credit with topic change. Letter grading.

162. Buddhist Meditation Traditions. (4) Lecture, three hours; discussion, one hour. Knowledge of Asian languages not required. Survey of theory and practice of meditation in Buddhism, with emphasis on Theravada and Zen schools. Topics include various typologies of meditation, symbiotic relationship between meditation and soteriology, and processes by which doctrinal innovation prompts changes in meditative praxis. Letter grading.

163. Buddhism across Boundaries. (4) Lecture, two hours; discussion, one hour. Recommended preparation: prior course on Buddhism or traditional Asian religions. Knowledge of Asian languages not required. Investigation of various themes in development of Buddhist traditions across historical periods as well as national and cultural boundaries, including issues of praxis, politics, and translation. Letter grading.

164. Buddhism and Early Religious History of Pakistan, Afghanistan, and Central Asia: Introduction. (4) Lecture, three hours. Knowledge of Asian languages not required. Survey of regions and religions of Central Asia, especially Buddhism in Afghanistan and Pakistan. Topics include archaeological, art historical material, and linguistic approaches to history of religions. Letter grading.

C170. Approaches to Study of Religion. (4) Seminar, three hours. Investigation of many ways in which religion and religions may be studied, including anthropological, sociological, psychological, phenomenological, political, reductionist, and other approaches. Readings of primary and secondary sources of modern scholarship. Concurrently scheduled with course C270. Letter grading.

190. Research Colloquia in Asian Languages and Cultures. (1) Seminar, one hour. Corequisite: course 198 or 199. Designed to bring together advanced undergraduate students undertaking individual supervised tutorial research in seminar setting with one or more faculty members to discuss their own work or related work in discipline. Led by one supervising faculty member. May be repeated for credit. P/NP grading.

191A. Variable Topics Research Seminars: Life Writing in East Asia. (4) Seminar, three hours. Research seminar on selected topics. Readings of biography and autobiography as elements of East Asian cultural traditions, with focus rotating between China, Japan, and Korea. Readings in English and relevant

East Asian languages, discussion, and development of culminating project. May be repeated for credit. Letter grading.

191B. Variable Topics Research Seminars: Buddhist Studies. (4) Seminar, three hours. Limited to juniors/seniors. Research seminar on selected topics in Buddhist studies. Reading, discussion, and development of culminating project. May be repeated for credit. Letter grading.

191H. Honors Research Seminars: Asian Languages and Cultures. (4) Seminar, three hours. Limited to departmental and College honors students. Introduction to research methods and critical approaches to study of Asia in preparation for writing of senior honors thesis. May be repeated for credit. Letter grading.

193. Speaker Series Seminars: Asian Languages and Cultures. (2) Seminar, two hours. Limited to undergraduate students. Introduction to latest scholarship in field of Asian studies. Attendance at selected scholarly presentations required, as well as sessions with faculty adviser to discuss presentations and published works of speakers. May be repeated for credit. P/NP grading.

195. Community Internships in Asian Languages and Cultures. (4) Tutorial, one hour; fieldwork, eight hours. Limited to juniors/seniors. Internship in supervised setting in community cultural or organizational setting. Students meet on regular basis with instructor and provide periodic journal reports of their experience. Final paper that combines academic research and knowledge gained from community experience required. Individual contract with supervising faculty member required. P/NP or letter grading.

198A-198B-198C. Honors Research in Asian Languages and Cultures. (4-4-4) Tutorial, three hours. Limited to junior/senior departmental majors. May be repeated for credit. Individual contract required. **198A.** (Formerly numbered 198.) Preparation: one undergraduate departmental seminar. Development of honors thesis under direct supervision of faculty member. Letter grading. **198B.** Enforced prerequisite: course 198A. Continuation of work initiated in course 198A. Presentation of research and relevant progress to supervising faculty member. In Progress grading (credit to be given only on completion of course 198C). **198C.** Enforced prerequisite: course 198B. Completion of research developed in courses 198A, 198B. Presentation of honors project to supervising faculty member. Letter grading.

199. Directed Research in Asian Languages and Cultures. (2 to 8) Tutorial, to be arranged. Recommended preparation: advanced reading knowledge of one Asian language. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated once with consent of instructor. Individual contract required. Letter grading.

Graduate Courses

200. Research Methods in East Asian Linguistics. (4) Seminar, three hours. Research methodologies for East Asian languages, with emphasis on compiling bibliographic data and using professional resources for research. Examination of issues in analyzing language examples, theoretical implications of linguistic data, and applications of functional linguistics in order to explain language phenomena. S/U or letter grading.

201. Proseminar: Approaches to Buddhist Studies. (4) Seminar, three hours. Designed for graduate students in Buddhist studies. Introduction to history of field, bibliography, relations with other disciplines, and current issues and research trends. S/U or letter grading.

202. Proseminar: Functional Approaches to Japanese/Korean Linguistics. (4) Seminar, four hours. Preparation: three years of Japanese or Korean, one year of any East Asian language, one functional linguistics course. Survey of recent empirical and theoretical research in syntax, semantico-pragmatics, theory of language change, and comparative sociolinguistics in Japanese/Korean. May be repeated for credit with consent of instructors. S/U or letter grading.

203. Variable Topics in East Asian Linguistics. (4) Seminar, three hours. Advanced course that explores topics in East Asian linguistics through critical reading of current research on Asian languages and in-depth analysis of linguistic data. Topics include linguistic structure, communicative function, pragmatics, language, society, and culture, and language change. May be repeated for credit. S/U or letter grading.

205. Variable Topics in East Asian Culture and History. (4) Seminar, three hours. Selected topics in East Asian culture and history, with focus on China, Japan, and Korea. May be repeated for credit with topic change. S/U or letter grading.

210. Proseminar: Cultural and Comparative Studies. (4) Seminar, three hours. Designed for graduate students. Introduction to theoretical topics relevant to comparative study of East Asian cultures in modern period. Readings include Western theoretical works balanced with texts taking congruent approaches to East Asian topics. S/U or letter grading.

215. Seminar: Cultural Studies Theory. (2) Seminar, two hours. Prerequisite: course 210. Reading and discussion of recent theoretical works in cultural studies. S/U grading.

220A-220B. Seminars: Topics in Cultural Studies. (4-4) Seminar, three hours. Complements course 210. Further investigation of methodology and materials of cultural studies in connection with specific topics selected by instructors. May be repeated for credit. In Progress (220A) and letter (220B) grading.

222A-222B. Seminars: Corpus Linguistics. (4-4) (Formerly numbered 222.) Seminar, three hours. Construction and exploitation of computerized language corpora for studying issues in areas such as lexicology, discourse grammar, language change and variation, language learning, and teaching. Discussion of special issues in working with East Asian language corpora. In Progress (222A) and S/U or letter (222B) grading.

230A-230B. Seminars: Theoretical Topics in East Asian Literature. (4-4) Seminar, three hours. Preparation: reading knowledge of at least one East Asian language. Concerns of literary theory that are brought to fore by reading of literature from or about East Asia. Readings from both Western and Eastern theorists; issues of translation, comparison, and categorization. In Progress (230A) and letter (230B) grading.

240A-240B. Seminars: Topics in East Asian Literary History. (4-4) Seminar, three hours. Preparation: reading knowledge of at least one East Asian language. Critical issues common to literary historiography in East Asia, including periodization, canon, ideology, interaction between high and low culture, written and oral, etc. In Progress (240A) and letter (240B) grading.

243. Translation Workshop: East Asian Texts. (2) Seminar, two hours. Prerequisite: Chinese 200A or Japanese 200A or Korean 200. Translation, grammatical analysis, and discussion of selections from premodern texts that enjoyed classical status throughout East Asia. S/U grading.

245A-245B. Seminars: Position of Modernity in East Asian Literature. (4-4) Seminar, three hours. Preparation: at least five years of one East Asian language. Designed for graduate students. Course 245A concerned with conceptual architecture and archaeology of modernity, with readings largely from European sources. In-class debate probes relevance of these readings for work as Asianists. Focus on Asian writings in course 245B. In Progress (245A) and letter (245B) grading.

M251. Seminar: Literary Theory. (5) (Same as Comparative Literature M294, English M270, French M270, German M270, Italian M270, Scandinavian M270, and Spanish M294.) Seminar, three hours. Advanced interdisciplinary seminar to explore philosophical, historical, and critical foundations of literary theory as well as current issues in literary and cultural studies. S/U or letter grading.

255. Topics in Southeast Asian Literature and/or Cinema. (4) Seminar, three hours. Knowledge of one Southeast Asian language recommended but not required. Theoretical concerns raised by works from Southeast Asia, one Southeast Asian nation, and/or Southeast Asian diasporas. Critical and historical examination of literary and/or film representations connected to practices of empire, nation, diaspora, and globalization. May be repeated for credit. S/U or letter grading.

265A-265B. Seminars: Selected Topics in Buddhist Studies. (4-4) Seminar, three hours. Coverage varies. May be repeated for credit. In Progress (265A) and letter (265B) grading.

C270. Approaches to Study of Religion. (4) Seminar, three hours. Investigation of many ways in which religion and religions may be studied, including anthropological, sociological, psychological, phenomenological, political, reductionist, and other approaches. Readings of primary and secondary sources of modern scholarship. Concurrently scheduled with course C170. Letter grading.

281A-281B. Field Methods for Study of East Asian Oral Traditions. (4-4) Seminar, three hours. Description and evaluation of modern approaches to collecting and documenting oral tradition as text, performance, and sociocultural event, providing hands-on experience in fieldwork and archiving methods. Consideration of approaches ranging from written transcription and textualization to audio and video presentations. In Progress (281A) and S/U or letter (281B) grading.

M292. Japan in Age of Empire. (4) (Same as Anthropology M276 and History M286.) Seminar, three hours. Designed for graduate students. Since late 19th century, Japan expanded its empire into East and Southeast Asia. Coverage of that period and array of anthropological studies conducted in Japan's colonies and occupied areas in this hardly explored area of study of colonialism. S/U or letter grading.

293. Graduate Student Colloquium. (4) Research group meeting, three hours. Designed to provide graduate students in Asian studies with opportunity to present their research to other students and faculty members. S/U grading.

297. Life Writing in East Asia. (4) Seminar, three hours. Readings of biography and autobiography as elements of East Asian cultural traditions, with focus rotating between China, Japan, and Korea. Readings in English and relevant East Asian languages. Letter grading.

299. Independent Study. (2 to 6) Tutorial, to be arranged. Designed for graduate students. Guided research and writing of research paper. May be repeated, but only 4 units may be applied toward M.A. degree. May not be applied toward Ph.D. degree. S/U or letter grading.

301. Teaching East Asian Language as Foreign Language. (4) Lecture, four hours. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Teaching Asian Languages at College Level. (4) Seminar, three hours. Preparation: appointment as teaching assistant in East Asian languages and cultures or South and Southeast Asian languages and cultures. Study in team-teaching, teaching methodology, developing course materials, and testing. Participation in peer observations and workshops required. Students receive unit credit toward full-time equivalence but not toward any degree requirements. S/U grading.

496C. Computer Technologies for Teaching College-Level Chinese. (2) Lecture, two hours. Intended for current or potential teaching assistants in Chinese. Introduction to tools and technology designed to enrich classroom learning, help effectively manage stu-

dent records, and expose students to current computer software and web resources. May not be applied toward degree requirements. S/U grading.

496E. Computer Technologies for Teaching College-Level East Asian Languages. (2) Lecture, two hours. Intended for current or potential teaching assistants in East Asian languages. Introduction to tools and technology designed to enrich classroom learning, help effectively manage student records, and expose students to current computer software and web resources. May not be applied toward degree requirements. S/U grading.

496J. Computer Technologies for Teaching College-Level Japanese. (2) Lecture, two hours. Intended for current or potential teaching assistants in Japanese. Introduction to tools and technology designed to enrich classroom learning, help effectively manage student records, and expose students to current computer software and web resources. May not be applied toward degree requirements. S/U grading.

496K. Computer Technologies for Teaching College-Level Korean. (2) Lecture, two hours. Intended for current or potential teaching assistants in Korean. Introduction to tools and technology designed to enrich classroom learning, help effectively manage student records, and expose students to current computer software and web resources. May not be applied toward degree requirements. S/U grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. Directed Individual Studies. (2 to 4) Tutorial, to be arranged. S/U grading.

597. Preparation for M.A. Comprehensive Examination or Ph.D. Qualifying Examinations. (4 to 8) Tutorial, to be arranged. S/U grading.

598. Research for and Preparation of M.A. Thesis. (4 to 8) Tutorial, to be arranged. Maximum of 8 units may be applied toward M.A. degree requirements. S/U grading.

599. Research for and Preparation of Ph.D. Dissertation. (4 to 8) Tutorial, to be arranged. S/U grading.

Chinese

Lower Division Courses

1. Elementary Modern Chinese. (5) Lecture, two hours; discussion, three hours. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Introduction to fundamentals of standard Chinese, including pronunciation, grammar, and Chinese characters, with emphasis on all four basic language skills—speaking, listening comprehension, reading, and writing. P/NP or letter grading.

1A. Elementary Modern Chinese for Advanced Beginners. (5) Lecture, two hours; discussion, three hours. Recommended preparation: ability to speak and understand Mandarin or other Chinese dialects at elementary levels. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Designed for students who already have certain listening and speaking skills in Mandarin or other Chinese dialects at elementary levels. Training in all four basic language skills (speaking, listening, reading, and writing). P/NP or letter grading.

2. Elementary Modern Chinese. (5) Lecture, two hours; discussion, three hours. Enforced prerequisite: course 1 with grade of C or better or Chinese placement test. First-year Chinese. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Continuation of course 1. P/NP or letter grading.

2A. Elementary Modern Chinese for Advanced Beginners. (5) Lecture, two hours; discussion, three hours. Enforced requisite: course 1A with grade of C or better or Chinese placement test. First-year Chinese. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Continuation of course 1A. P/NP or letter grading.

3. Elementary Modern Chinese. (5) Lecture, two hours; discussion, three hours. Enforced requisite: course 2 with grade of C or better or Chinese placement test. First-year Chinese. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Continuation of course 2. P/NP or letter grading.

3A. Elementary Modern Chinese for Advanced Beginners. (5) Lecture, two hours; discussion, three hours. Enforced requisite: course 2A with grade of C or better or Chinese placement test. First-year Chinese. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Continuation of course 2A. P/NP or letter grading.

4. Intermediate Modern Chinese. (5) Lecture, five hours. Enforced requisite: course 3 with grade of C or better or Chinese placement test. Second-year Chinese. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Designed to strengthen communicative skills of listening, speaking, reading, and writing. Grammar reviews, knowledge of idiomatic expressions, and both traditional and simplified characters. P/NP or letter grading.

4A. Intermediate Modern Chinese for Advanced Students. (5) Lecture, five hours. Enforced requisite: course 3A with grade of C or better or Chinese placement test. Second-year Chinese. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Designed for students who already have certain listening and speaking skills in Mandarin or other Chinese dialects at intermediate levels. Training in all four basic language skills (speaking, listening, reading, and writing). P/NP or letter grading.

5. Intermediate Modern Chinese. (5) Lecture, five hours. Enforced requisite: course 4 with grade of C or better or Chinese placement test. Second-year Chinese. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Continuation of course 4. P/NP or letter grading.

5A. Intermediate Modern Chinese for Advanced Students. (5) Lecture, five hours. Enforced requisite: course 4A with grade of C or better or Chinese placement test. Second-year Chinese. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Continuation of course 4A. P/NP or letter grading.

5C. Mandarin for Cantonese Speakers. (5) Lecture, four hours. Enforced preparation: Chinese placement test. Designed for students who are Cantonese speakers and familiar with Chinese characters and who need to improve their pronunciation of standard Mandarin dialect. P/NP or letter grading.

6. Intermediate Modern Chinese. (5) Lecture, five hours. Enforced requisite: course 5 with grade of C or better or Chinese placement test. Second-year Chinese. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Continuation of course 5. P/NP or letter grading.

6A. Intermediate Modern Chinese for Advanced Students. (5) Lecture, five hours. Enforced requisite: course 5A with grade of C or better or Chinese placement test. Second-year Chinese. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Continuation of course 5A. P/NP or letter grading.

6C. Mandarin for Cantonese Speakers. (5) Lecture, four hours. Enforced requisite: course 5C or Chinese placement test. Designed for students who are Cantonese speakers and familiar with Chinese characters and who need to improve their pronunciation of

standard Mandarin dialect. Completion of course 6C is equivalent to completion of course 6. P/NP or letter grading.

8. Elementary Chinese: Intensive. (15) Lecture, 10 hours; discussion, 10 hours. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Intensive course equivalent to courses 1, 2, and 3. Introduction to fundamentals of standard Chinese, including pronunciation, grammar, and Chinese characters, with emphasis on all four basic language skills—speaking, listening comprehension, reading, and writing. Offered in summer only. P/NP or letter grading.

8A. Elementary Modern Chinese for Advanced Beginners: Intensive. (15) Lecture, 10 hours; discussion, 10 hours. Intensive course equivalent to courses 1A, 2A, and 3A. Designed for students who already have some listening and speaking skills in Mandarin Chinese but do not have any reading and writing skills and for students who speak Chinese dialect other than Mandarin at home and have some knowledge of Chinese characters (i.e., can read some basic Chinese). Coverage of listening, speaking, reading, and writing skills. Offered in summer only. P/NP or letter grading.

10. Intermediate Modern Chinese: Intensive. (15) Lecture, 10 hours; discussion, 10 hours. Enforced requisite: course 3, 3A, or 8 with grade of C or better or Chinese placement test. Second-year Chinese. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Intensive course equivalent to courses 4, 5, and 6. Designed to strengthen communicative skills of listening, speaking, reading, and writing. Grammar reviews, knowledge of idiomatic expressions, and both traditional and simplified characters. Completion of course 10 is equivalent to completion of course 6. Offered in summer only. P/NP or letter grading.

50. Chinese Civilization. (5) Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. Introduction to most important aspects of Chinese culture. Topics include early Chinese civilization, historical development of Chinese society, issues of ethnicity, Chinese language and philosophy, and early scientific and technological innovation. P/NP or letter grading.

60. Introduction to Chinese Religions. (5) Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course 60W. Knowledge of Chinese not required. General survey of religious life in China, with emphasis on everyday religious practice over doctrine, and themes common to Buddhism, Daoism, and Confucianism. P/NP or letter grading.

60W. Introduction to Chinese Religions. (5) Lecture, three hours; discussion, one hour. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 60. Knowledge of Chinese not required. General survey of religious life in China, with emphasis on everyday religious practice over doctrine, and themes common to Buddhism, Daoism, and Confucianism. Satisfies Writing II requirement. Letter grading.

70. Classics of Chinese Literature. (5) Lecture, three hours; discussion, one hour. Prior knowledge of Chinese culture, literature, or language not required. Introduction to pre-20th-century Chinese literary traditions, including selections from poetry, prose, fiction, and drama. P/NP or letter grading.

97. Variable Topics in Chinese Culture. (4) Lecture, three hours. Knowledge of Chinese language or culture not required. Variable topics course covering many different aspects of Chinese culture. Consult *Schedule of Classes* for topics to be offered in specific term. May be repeated for credit with topic change. P/NP or letter grading.

Upper Division Courses

100A-100B-100C. Advanced Modern Chinese. (4-4-4) Lecture, two hours; discussion, two hours. Enforced requisite: course 6, 6A, or 10 with grade of C or better or Chinese placement test. Course 100A with

grade of C or better or Chinese placement test is enforced requisite to 100B; course 100B with grade of C or better or Chinese placement test is enforced requisite to 100C. Third-year Chinese. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Materials selected from contemporary Chinese publications, with emphasis on social sciences. Texts analyzed for their linguistic features and social and cultural background. Readings, compositions, informal debates on topical issues, and oral presentations. P/NP or letter grading.

100L. Advanced Modern Chinese: Intensive. (12) Lecture, 10 hours; discussion, 10 hours. Enforced requisite: course 6 or 10 with grade of C or better or Chinese placement test. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Intensive course equivalent to courses 100A, 100B, and 100C. Materials selected from contemporary Chinese publications, with emphasis on social sciences. Texts analyzed for their linguistic features and social and cultural background. Readings, compositions, informal debates on topical issues, and oral presentations. Offered in summer only. P/NP or letter grading.

101A-101B. Advanced Readings in Modern Chinese. (4-4) Lecture, two hours; discussion, two hours. Enforced requisite: course 100C or 100L or Chinese placement test. Not open to students who have learned, from whatever source, enough Chinese to qualify for more advanced courses. Advanced readings and discussion for students planning to do advanced coursework or research on China. Topics from magazines, journals, and books related to humanities and social sciences. Each course may be taken independently for credit. Letter grading.

102A. Advanced Chinese for International Business. (4) Lecture, two hours; discussion, two hours. Recommended preparation: one to two years of college-level Chinese. Designed to improve student language skills in service of business practice and ground language learning in authentic social cultural settings. Oral and written business communication, social etiquettes in business conduct, Chinese economic and business climate, business law and regulations, resources and environment, and business case studies. May be taken independently for credit. Letter grading.

102B. Advanced Chinese for International Business. (4) Lecture, two hours; discussion, two hours. Enforced requisite: course 102A. Doing business with China and understanding Chinese economy and business conducts require advanced level of Chinese language proficiency and deep understanding of Chinese society and culture. Designed to improve student language skills in service of business practice and ground language learning in authentic social cultural settings. Oral and written business communication, social etiquettes in business conduct, Chinese economic and business climate, business law and regulations, resources and environment, and business case studies. Letter grading.

103. Topics in Chinese Language and Culture. (2 to 4) Lecture, three hours. Chinese language and culture for special purposes. May be repeated for credit. Offered in summer only. P/NP or letter grading.

C107A-C107B. Academic/Professional Chinese. (4-4) Lecture, three hours; discussion, one hour. Enforced requisite: course 101B or Chinese placement test. Intended to improve reading and writing skills in specific academic and professional subject areas for students who have studied general Chinese at advanced level, with coverage in Chinese humanities and social sciences, science and technology, medicine, and applied linguistics. Concurrently scheduled with courses C207A-C207B. P/NP or letter grading.

108FL. Special Studies: Readings in Chinese. (2) Seminar, two hours. Enforced requisite: course 100C or 100L or Chinese placement test. Students must be concurrently enrolled in affiliated main course. Additional work in Chinese to augment work assigned in

main course, including reading, writing, and other exercises. May be repeated for credit. P/NP or letter grading.

109. Advanced Tutorial Instruction in Chinese. (2) Tutorial, two hours. Requisite: course 100C or Chinese placement test. Tutorial and guided independent study to help students develop advanced to superior proficiency in oral and written Chinese. May be repeated for credit. P/NP or letter grading.

110A-110B-110C. Introduction to Classical Chinese. (4-4-4) Lecture, three hours; discussion, one hour. Enforced requisite: course 3 or Chinese placement test. Course 110A is enforced requisite to 110B, which is enforced requisite to 110C. Grammar and readings in selected premodern texts. P/NP or letter grading.

120. Introduction to Chinese Linguistics. (4) Lecture, three hours. Requisite: course 6, 6A, 6C, or 10. Introduction to Chinese sound system, writing system and its reform, regional differences, major structural features, language in society and in cultural practices. Letter grading.

130A-130B. Readings in Modern Chinese Literature. (4-4) Lecture, three hours; discussion, one hour. Enforced requisite: course 100B or Chinese placement test. Readings and discussion of works of modern Chinese literature. Each course may be taken independently for credit. Letter grading.

135. Chinese-Language Film and Culture. (4) Lecture, two hours; discussion, one hour; film viewing, three hours. Enforced requisite: course 100C or 100I or Chinese placement test. Viewing and discussion of Chinese films, along with relevant readings in Chinese. Letter grading.

C138. Travel Writing in Premodern China. (4) (Formerly numbered 138.) Lecture, three hours; discussion, one hour. Recommended preparation: course 50. Exploration of travel writing in China, with focus on English translations of works by native writers and by foreign visitors through centuries. Concurrently scheduled with course C238. Letter grading.

139. Gardens in China. (4) (Formerly numbered Asian C139.) Lecture, three hours; discussion, one hour. Recommended preparation: course 50. Interdisciplinary survey of historic and literary gardens in China, with focus on English translations of texts by native writers and recent Western scholarship. Letter grading.

140A-140D. Readings in Classical Chinese Literature. (4 each) Lecture, three hours. Enforced requisite: course 110C. Advanced classical Chinese. Readings and discussion of works of premodern Chinese literature. Each course may be taken independently for credit. Letter grading. **140A.** Poetry; **140B.** Prose; **140C.** Fiction; **140D.** Philosophical Texts. (Formerly numbered 170.).

C150A. Lyrical Traditions. (4) Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. Readings in English translation of poetic and critical writings of traditional China, with emphasis on development of subjectivity and modes of address. Concurrently scheduled with course C250A. P/NP or letter grading.

150B. Traditional Narrative and Drama. (4) Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. Readings from narrative and dramatic writings of traditional China, with emphasis on self and society, growth of fictionality, subjectivity, and gender representation. May be taken independently for credit. Letter grading.

151. Chinese Literature in Translation: Modern Literature. (4) Lecture, three hours; discussion, one hour. Requisite: English Composition 3 or 3H or one course from Comparative Literature 1A, 1B, 1C, 1D. Knowledge of Chinese not required. Lectures and reading of representative works from 1900 to present in English translation. Letter grading.

152. Topics in Contemporary Chinese Literature and Culture. (4) Lecture, two hours; discussion, one hour. Knowledge of Chinese not required. Investigation of various topics in contemporary Chinese literature

and culture, including politics and poetics of Chinese postmodernism, nativism, feminism, mass culture, and media. Letter grading.

M153. Chinese Immigrant Literature and Film. (4) (Same as Asian American Studies M130B and Comparative Literature M171.) Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. In-depth look at Chinese immigrant experience by reading literature and watching films. Theories of diaspora, gender, and race to inform thinking and discussion of relevant issues. P/NP or letter grading.

154. Introduction to Chinese Cinema. (4) Lecture, two hours; discussion, one hour; film viewing, three hours. Knowledge of Chinese not required. History of Chinese-language cinemas, with emphasis on mainland China. Examination of film style and aesthetics, as well as contexts of industry, economics, politics, culture, and society. May not be repeated for credit. Letter grading.

155. Topics in Chinese Cinema. (4) Lecture, two hours; discussion, one hour; film viewing, three hours. Knowledge of Chinese not required. Critical study of films from China, Hong Kong, Taiwan, and Chinese diaspora. Examination of aesthetics, genres, directors and stars, other arts and media, and cultural and political histories. May be repeated for credit with topic change. P/NP or letter grading.

C156. Variable Topics in Culture and Society in Taiwan. (4) (Formerly numbered 156.) Lecture, three hours; discussion, one hour. Designed for seniors. Knowledge of Chinese not required. Examination of relationship between culture (art, literature, film) and society in Taiwan. Reading, audio and visual material, discussion, and development of culminating project. May be repeated for credit with topic change. Concurrently scheduled with course C257. Letter grading.

157. Contemporary Chinese Popular Culture. (4) Lecture, three hours; discussion, one hour. Examination of various aspects of modern and contemporary popular culture in China, Taiwan, and Hong Kong from cultural studies perspective. Genres and media include literature, print culture, cinema, martial arts film and fiction, television, radio, pop music, visual arts, fashion, advertising, and cyberculture. P/NP or letter grading.

C160. Chinese Buddhism. (4) Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. Introduction and development of Buddhism in China, interaction between Buddhism and Chinese culture, rise of Chinese schools of Buddhism. Concurrently scheduled with course C260. Letter grading.

165. Introduction to Chinese Buddhist Texts. (4) Lecture, three hours; discussion, one hour. Recommended requisite: course 100A or 110B or Japanese 110 or Korean 100A or Chinese placement test. Readings in premodern Buddhist texts written in literary Chinese and taken from translated Indian sutras, indigenous exegetical materials, Chinese apocryphal scriptures, and Ch'an writings. Problems in translation from Indo-European languages into Chinese; evolution of Chinese Buddhist terminology. Coverage varies. May be repeated for credit with consent of instructor. Letter grading.

174. Chinese Strategic Thought. (4) Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. Introduction to early Chinese narratives and theories of military, diplomatic, and rhetorical strategy. Letter grading.

C175. Introduction to Chinese Thought. (4) Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. Survey of Chinese thought as represented in texts of Zhou through early Han periods (circa 1000 to 100 B.C.E.), with focus on invention of Confucian tradition (including Five Classics) and on defenses of that tradition against challenges from Mohists, Taoists, and other groups of thinkers. Concurrently scheduled with course C275. Letter grading.

176. Neo-Confucianism. (4) Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. Examination of movement to revitalize and reinterpret teachings of Confucius during Tang, Song,

Yuan, and Ming dynasties, with consideration of both neo-Confucian philosophy and social action. Letter grading.

180. Chinese Mythology. (4) Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. Survey of corpus of traditional Chinese mythology, with focus on examples preserved in variety of early texts, later evolutions in dramatic and fictional works, and evidence from visual arts. Letter grading.

182. Archaeology of Early Global Trade and Piracy. (4) Lecture, three hours; discussion, one hour. Exploration of role of trade and piracy at threshold of globalization (13th to 17th century), with focus on continuity and transformation in Asiatic trade network in response to early global trade. Investigation based on archaeological study of porcelain, tracing movement from kilns around Chinese trading ports to shipwrecks and consumer societies in Southeast Asia and colonial Americas. As one of most important commodities on trans-Pacific voyage, close association of porcelain production and trade with international piracy in traditional historiography presents new angle for understanding dynamics of early global trade and industries. Letter grading.

M183. Archaeological Landscapes of China. (4) (Same as Anthropology M116S.) Lecture, three hours; discussion, one hour. Declassified space images from Cold War era and open remote sensing data of 21st century provide new opportunities for studying landscape transformation in historical China. Combining lectures, library research, and hands-on analysis of archaeological sites on satellite images, investigation of changing historical and archaeological landscape in China during last 5,000 years. Social processes at various scales, from emergence of early cities to rise of metropolitan centers and formation of imperial landscapes. Letter grading.

185. Food and Love in Chinese Culture. (4) Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. Based on studies of cultural, historical, anthropological, and archaeological materials, introduction to how Chinese have been engaging themselves in fields of food eating and love making. Letter grading.

186. Archaeology in China. (4) Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. Early Chinese study of their own past, types of artifacts, beginnings of scientific archaeology, and surveys of major excavations of sites of all periods. Letter grading.

187. Chinese Etymology and Calligraphy. (4) Lecture, three hours; discussion, one hour. Recommended requisite: course 3. Coverage of (1) development of Chinese writing system from pottery inscriptions 6,000 years ago to modern simplified forms and studies of six scripts principles that were used to form Chinese characters and (2) aesthetic training of calligraphic art and its appreciation, with focus on ways of recognizing and interpreting cursive style, common form of handwriting. Letter grading.

191A. Variable Topics Research Seminars: Classical China. (4) Seminar, three hours. Designed for juniors/seniors. Research seminar on selected topics in premodern Chinese literature, thought, and culture. Reading, discussion, and development of culminating project. May be repeated for credit. Letter grading.

191B. Variable Topics Research Seminars: 20th-Century China and Taiwan. (4) (Formerly numbered 191A.) Seminar, three hours. Designed for juniors/seniors. Research seminar on selected topics in modern and contemporary literature and culture from China and Taiwan. Reading, discussion, and development of culminating project. May be repeated for credit. Letter grading.

197. Individual Studies in Chinese. (4) Tutorial, to be arranged. Limited to juniors/seniors and graduate students who desire more advanced or specialized instruction in Chinese. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required; see undergraduate adviser. P/NP or letter grading.

Graduate Courses

200A. Research Methods in Chinese. (4) Seminar, three hours. Prerequisite: course 110C. Lectures and discussion designed to develop basic skills in using traditional Chinese research materials. Topics include classical dictionaries; sinological indices; bibliographical, biographical, and geographical sources; encyclopedias; anthologies; rare editions; illustrated matter and calligraphy. S/U grading.

200B. Proseminar: Premodern Chinese Literature. (4) Seminar, three hours. Introduction to major bibliographical and methodological resources in field of premodern Chinese literature, with focus on research tools in field and on scholarship in English on major literary genres, periods, and authors. S/U or letter grading.

200C. Proseminar: Modern Chinese Literature. (4) Seminar, three hours. Introduction to major bibliographical and methodological resources in field of modern Chinese literature, with focus on research tools and on scholarship in English on modern literary trends and genres. S/U or letter grading.

M201. China—Seminar: Classical Historiography and Readings in Classical Studies. (4) (Same as History M281.) Seminar, three hours. Preparation: two years of classical Chinese or working knowledge of classical Chinese. Readings in historiography and selected genres of historical documents. Letter grading.

M202. China Studies: Discipline, Methods, Debates. (2) (Same as History M280.) Seminar, two hours. Introduction to study of China as practiced in humanities and social science disciplines. S/U grading.

205. Critical Issues in Chinese and Sinoophone Literature. (4) Seminar, three hours. Methodology course for all incoming graduate students in 20th-century Chinese literature and culture. Discussion of major theoretical and textual issues and methods. Letter grading.

C207A-C207B. Academic/Professional Chinese. (4-4) Lecture, three hours; discussion, one hour. Enforced prerequisite: course 101B or Chinese placement test. Intended to improve reading and writing skills in specific academic and professional subject areas for students who have studied general Chinese at advanced level, with coverage in Chinese humanities and social sciences, science and technology, medicine, and applied linguistics. Concurrently scheduled with courses C107A-C107B. S/U or letter grading.

209. Issues in Sinoophone Literature. (4) Seminar, three hours. Exploration of selected topics and issues in Sinoophone literature, literature written in Sinitic languages by ethnic minority writers in China, and literature written by those living outside China across world, especially in Malaysia, Taiwan, Singapore, and the U.S. S/U or letter grading.

210. Modern Chinese Literary History. (4) Lecture, three hours. Designed for graduate students. Discussion of history of modern Chinese literature, focusing on sources, controversies, major literary genres, and critical approaches to studying relationship between literature and history. Letter grading.

211A-211B. Seminars: Classical Chinese Poetry. (4-4) Seminar, three hours. Preparation: reading knowledge of literary Chinese. Topics rotate among major textual traditions and chronological periods. Emphasis on philological, critical, and historical approaches. May be repeated for credit with consent of instructor. In Progress (211A) and letter (211B) grading.

212. Topics in Chinese Poetry. (4) Readings/discussion, three hours. Selected readings from classical poetic tradition, with focus on individual poets, themes, or other critical issues. May be repeated for credit with consent of instructor. Letter grading.

213A-213B. Chinese-Language Cinemas. (4-4) (Formerly numbered 213.) Seminar, three hours; film-viewing laboratory, two hours. Advanced topics in Chinese-language cinemas. Examination of theory and methodology, historiography, industry and institutions, style and aesthetics, major genres and artists, other

arts and media, other cinematic traditions, and social contexts. May be repeated for credit with consent of instructor. In Progress (213A) and letter (213B) grading.

220A-220B. Western Theory and Chinese Texts. (4-4) Seminar, three hours. Discussions to be framed by Western literary and cultural theory, investigating both challenges and limitations Western theory may pose for Chinese literary and cultural studies. Specific topics vary from year to year. In Progress (220A) and S/U or letter (220B) grading.

224A-224B. Seminars: Selected Topics in Chinese Linguistics. (4-4) Seminar, three hours. Critical reading and discussion of selected topics in Chinese functional linguistics (discourse and grammar, corpus linguistics, sociolinguistics, language change). May be repeated for credit with consent of instructor. In Progress (224A) and letter (224B) grading.

226A. Seminar: Topics in Chinese Applied Linguistics. (4) Seminar, three hours. Critical reading and discussion of selected topics in Chinese applied linguistics (teaching Chinese as a second language, second language acquisition theories and practices). May be repeated for credit with consent of instructor. S/U or letter grading.

230A-230B. Seminars: Selected Topics in Modern Chinese Literature. (4-4) Seminar, three hours. Selected readings in 20th-century Chinese literature, emphasizing fiction. Discussion of individual research projects. May be repeated for credit. In Progress (230A) and letter (230B) grading.

C238. Travel Writing in Premodern China. (4) Lecture, three hours; discussion, one hour. Recommended preparation: course 50. Exploration of travel writing in China, with focus on English translations of works by native writers and by foreign visitors through centuries. Concurrently scheduled with course C138. Letter grading.

241A-241B. Heaven, Earth, and Monarchy in Ancient China. (4-4) Seminar, three hours. Preparation: working knowledge of classical Chinese. Close reading of chapters from Han dynasty collection of writings on forms of music, social interaction, education, marriage, and mourning in Zhou royal court, with discussion of topics in recent cultural semiology and anthropology. In Progress (241A) and letter (241B) grading.

242A-242B. Chinese Classics and Exegetical Traditions. (4-4) (Formerly numbered 242.) Seminar, three hours. Recommended preparation: command of literary Chinese. Reading and discussions of selections from one traditional Chinese classic (Confucian Five Classics, others), with introduction to exegetical history, secondary scholarship, and research methodology. Topics vary from year to year. May be repeated for credit. In Progress (242A) and letter (242B) grading.

243. Translation Workshop: Premodern Chinese Texts. (2) Seminar, two hours. Prerequisite: course 200B. Translation, grammatical analysis, and discussion of selections from premodern Chinese texts. S/U grading.

245A-245B. Seminars: Traditional Chinese Narrative and Drama. (4-4) Seminar, three hours. Preparation: reading knowledge of colloquial and literary Chinese. Seminar topics alternate yearly between traditional narrative and drama, with emphasis on generic, hermeneutical, and historical approaches. Topics in narrative selected from genres from Chou through Ch'ing periods. Topics in drama selected from *tsa-chü* and *ch'uan-ch'i*. May be repeated for credit with consent of instructor. In Progress (245A) and letter (245B) grading.

C250A. Lyrical Traditions. (4) Lecture, three hours; discussion, one hour. Readings of poetic and critical writings of traditional China, with emphasis on development of subjectivity and modes of address. Concurrently scheduled with course C150A. Graduate students required to read primary materials in original Chinese. S/U or letter grading.

256A-256B. Chinese Literary Criticism. (4-4) Seminar, three hours. Issues in production and interpretation of literary works, as formulated by Chinese critics from classical age onward. Letter grading.

C257. Variable Topics in Culture and Society in Taiwan. (4) Lecture, three hours; discussion, one hour. Designed for graduate students. Knowledge of Chinese not required. Examination of relationship between culture (art, literature, film) and society in Taiwan. Reading, audio and visual material, discussion, and development of culminating project. May be repeated for credit with topic change. Concurrently scheduled with course C156. Letter grading.

C260. Chinese Buddhism. (4) Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. Introduction and development of Buddhism in China, interaction between Buddhism and Chinese culture, rise of Chinese schools of Buddhism. Concurrently scheduled with course C160. Letter grading.

265A-265B. Seminars: Chinese Buddhist Texts. (4-4) Seminar, three hours. May be repeated for credit with consent of instructor. In Progress (265A) and letter (265B) grading.

C275. Introduction to Chinese Thought. (4) Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. Survey of Chinese thought as represented in texts of Zhou through early Han periods (circa 1000 to 100 B.C.E.), with focus on invention of Confucian tradition (including Five Classics) and on defenses of that tradition against challenges from Mohists, Taoists, and other groups of thinkers. Concurrently scheduled with course C175. Letter grading.

290A-290B. Seminars: Selected Topics in Chinese Archaeology. (4-4) Seminar, three hours. Prerequisite: course 186. Discussion and research on major problems about Chinese archaeology and different interpretations to most important archaeological finds, with emphasis on studies of Xia and Shang cultures and Xia and Shang dynasties. May be repeated for credit. In Progress (290A) and letter (290B) grading.

291. Archaeological Process in China. (4) Seminar, three hours. Introduction to major bibliographical and methodological resources in field of Chinese archaeology to provide deeper understanding of formulation of conceptual categories archaeologists of early China used to make sense of past through interpretation of material culture. S/U or letter grading.

295A-295B. Seminars: Selected Topics in Chinese Cultural History. (4-4) Seminar, three hours. Discussion and research on major problems related to Chinese culture, such as beginnings of Chinese civilization and Chinese dynastic history. Other topics include cultural developments of ancient and medieval China. May be repeated for credit. In Progress (295A) and letter (295B) grading.

297B. Seminar: Research Topics in Modern Chinese and Sinoophone Culture. (4) Seminar, three hours. Selected topics in modern Chinese and Sinoophone culture, with major emphasis on independent research. S/U or letter grading.

Filipino

Lower Division Courses

1. Introductory Filipino. (5) (Formerly numbered Southeast Asian 70A.) Lecture, five hours. Coverage of basic Filipino/Tagalog grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

2. Introductory Filipino. (5) (Formerly numbered Southeast Asian 70B.) Lecture, five hours. Enforced prerequisite: course 1 with grade of C or better. Coverage of basic Filipino/Tagalog grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

3. Introductory Filipino. (5) (Formerly numbered Southeast Asian 70C.) Lecture, five hours. Enforced prerequisite: course 2 with grade of C or better. Coverage of basic Filipino/Tagalog grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

4. Intermediate Filipino. (5) (Formerly numbered Southeast Asian 71A.) Lecture, five hours. Enforced prerequisite: course 3 with grade of C or better. Reinforcement of basic Filipino/Tagalog grammar and cov-

erage of more advanced topics. Broadening of skills in conversation and composition; reading of selected texts. P/NP or letter grading.

5. Intermediate Filipino. (5) (Formerly numbered Southeast Asian 71B.) Lecture, five hours. Enforced requisite: course 4 with grade of C or better. Reinforcement of basic Filipino/Tagalog grammar and coverage of more advanced topics. Broadening of skills in conversation and composition; reading of selected texts. P/NP or letter grading.

6. Intermediate Filipino. (5) (Formerly numbered Southeast Asian 71C.) Lecture, five hours. Enforced requisite: course 5 with grade of C or better. Reinforcement of basic Filipino/Tagalog grammar and coverage of more advanced topics. Broadening of skills in conversation and composition; reading of selected texts. P/NP or letter grading.

8. Elementary Filipino: Intensive. (15) Lecture, 10 hours; discussion, 10 hours. Intensive course equivalent to courses 1, 2, and 3. Coverage of basic Filipino/Tagalog grammar, with equal emphasis on reading, writing, conversation, and comprehension. Offered in summer only. P/NP or letter grading.

Upper Division Courses

100A. Advanced Filipino: Reading and Writing. (4) (Formerly numbered Southeast Asian 172A.) Lecture, three hours. Enforced requisite: course 6 with grade of C or better or Filipino/Tagalog placement test. Designed to move students with intermediate level of proficiency toward greater proficiency and fluency in reading, writing, speaking, and listening in Filipino language. Coverage of skills in effective use of language: description, narration, exposition, and argumentation. How to analyze different elements of writing and reading of pieces from several genres of contemporary Filipino writing. P/NP or letter grading.

109. Advanced Tutorial Instruction in Filipino. (2) Tutorial, two hours. Requisite: course 6 or Filipino/Tagalog placement test. Tutorial and guided independent study to help students develop advanced to superior proficiency in oral and written Filipino. May be repeated for credit. P/NP or letter grading.

130A. Filipino Short Story. (4) (Formerly numbered Southeast Asian 175.) Lecture, three hours. Enforced requisite: course 6 or Filipino/Tagalog placement test. General background knowledge on how Filipino writers view themselves and society, historically and diachronically. Sample of short stories written in Filipino/Tagalog language with some written in English for purposes of contrasting rhetoric, themes, and sensibilities. P/NP or letter grading.

152. Survey of Philippine Literature. (4) (Formerly numbered Southeast Asian 174.) Lecture, three hours. Enforced requisite: course 6. Conducted in Filipino language. Introduction to study of Philippine literature from pre-Hispanic to contemporary times. Readings of poetry, short stories, plays, novels, and historical survey to gain broad perspective of Philippine literature and understanding of literary development in Philippines. Study of effect of colonization on Filipino indigenous culture. P/NP or letter grading.

Hindi-Urdu

Lower Division Courses

1. Introductory Hindi-Urdu. (5) (Formerly numbered South Asian 40A.) Lecture, two hours; discussion, three hours. Coverage of basic Hindi grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

2. Introductory Hindi-Urdu. (5) (Formerly numbered South Asian 40B.) Lecture, two hours; discussion, three hours. Enforced requisite: course 1 with grade of C or better. Coverage of basic Hindi grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

3. Introductory Hindi-Urdu. (5) (Formerly numbered South Asian 40C.) Lecture, two hours; discussion, three hours. Enforced requisite: course 2 with

grade of C or better. Coverage of basic Hindi grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

3R. Elementary Hindi-Urdu Reading and Writing. (5) (Formerly numbered South Asian 40R.) Lecture, five hours. Recommended preparation: speaking and listening skills in Hindi-Urdu. Training in reading and writing skills at elementary level, equivalent to completion of one year of Hindi. P/NP or letter grading.

4. Intermediate Hindi-Urdu. (5) (Formerly numbered South Asian 41A.) Lecture, two hours; discussion, three hours. Enforced requisite: course 3 with grade of C or better. Reinforcement of basic Hindi grammar and coverage of more advanced topics. Broadening of skills in conversation and composition; reading of selected texts. P/NP or letter grading.

5. Intermediate Hindi-Urdu. (5) (Formerly numbered South Asian 41B.) Lecture, two hours; discussion, three hours. Enforced requisite: course 4 with grade of C or better. Reinforcement of basic Hindi grammar and coverage of more advanced topics. Broadening of skills in conversation and composition; reading of selected texts. P/NP or letter grading.

6. Intermediate Hindi-Urdu. (5) (Formerly numbered South Asian 41C.) Lecture, two hours; discussion, three hours. Enforced requisite: course 5 with grade of C or better. Reinforcement of basic Hindi grammar and coverage of more advanced topics. Broadening of skills in conversation and composition; reading of selected texts. P/NP or letter grading.

Upper Division Course

109. Advanced Tutorial Instruction in Hindi-Urdu. (2) Tutorial, two hours. Requisite: course 6 or Hindi-Urdu placement test. Tutorial and guided independent study to help students develop advanced to superior proficiency in oral and written Hindi-Urdu. May be repeated for credit. P/NP or letter grading.

Indonesian

Lower Division Courses

1. Introductory Indonesian. (5) (Formerly numbered Southeast Asian 80A.) Lecture, five hours. Not open to students who have learned enough Indonesian to qualify for more advanced courses. Coverage of basic Indonesian grammar, with equal emphasis on reading, writing, listening, and speaking skills. P/NP or letter grading.

2. Introductory Indonesian. (5) (Formerly numbered Southeast Asian 80B.) Lecture, five hours. Enforced requisite: course 1 with grade of C or better. Not open to students who have learned enough Indonesian to qualify for more advanced courses. Coverage of basic Indonesian grammar, with equal emphasis on reading, writing, listening, and speaking skills. P/NP or letter grading.

3. Introductory Indonesian. (5) (Formerly numbered Southeast Asian 80C.) Lecture, five hours. Enforced requisite: course 2 with grade of C or better. Not open to students who have learned enough Indonesian to qualify for more advanced courses. Coverage of basic Indonesian grammar, with equal emphasis on reading, writing, listening, and speaking skills. P/NP or letter grading.

4. Intermediate Indonesian. (5) (Formerly numbered Southeast Asian 81A.) Lecture, five hours. Enforced requisite: course 3 with grade of C or better. Designed to expand language skills acquired in introductory courses and to equip students with good command of communicative competence in Indonesian. P/NP or letter grading.

5. Intermediate Indonesian. (5) (Formerly numbered Southeast Asian 81B.) Lecture, five hours. Enforced requisite: course 4 with grade of C or better. Designed to expand language skills acquired in introductory courses and to equip students with good command of communicative competence in Indonesian. P/NP or letter grading.

6. Intermediate Indonesian. (5) (Formerly numbered Southeast Asian 81C.) Lecture, five hours. Enforced requisite: course 5 with grade of C or better. Designed to expand language skills acquired in introductory courses and to equip students with good command of communicative competence in Indonesian. P/NP or letter grading.

Upper Division Courses

100A-100B-100C. Advanced Indonesian. (4-4-4) (Formerly numbered Southeast Asian 182A-182B-182C.) Lecture, three hours. Requisite: course 6 with grade of C or better. Course 100A with grade of C or better is requisite to 100B; course 100B with grade of C or better is requisite to 100C. Preparation for more advanced study of specialized academic subjects, including but not limited to social sciences and humanities. Students read authentic materials in Indonesian concerning various issues. P/NP or letter grading.

109. Advanced Tutorial Instruction in Indonesian. (2) Tutorial, two hours. Requisite: course 6 or Indonesian placement test. Tutorial and guided independent study to help students develop advanced to superior proficiency in oral and written Indonesian. May be repeated for credit. P/NP or letter grading.

Japanese

Lower Division Courses

1. Elementary Modern Japanese. (5) Lecture, two hours; discussion, three hours. Not open to students who have learned, from whatever source, enough Japanese to qualify for more advanced courses. Introduction to modern Japanese with attention to conversation, grammar, and written forms. Conversation drill based on material covered in class. P/NP or letter grading.

2. Elementary Modern Japanese. (5) Lecture, two hours; discussion, three hours. Enforced requisite: course 1 with grade of C or better or Japanese placement test. Not open to students who have learned, from whatever source, enough Japanese to qualify for more advanced courses. Continuation of course 1. P/NP or letter grading.

3. Elementary Modern Japanese. (5) Lecture, two hours; discussion, three hours. Enforced requisite: course 2 with grade of C or better or Japanese placement test. Not open to students who have learned, from whatever source, enough Japanese to qualify for more advanced courses. Continuation of course 2. P/NP or letter grading.

4. Intermediate Modern Japanese. (5) Lecture, five hours. Enforced requisite: course 3 or 8 with grade of C or better or Japanese placement test. Not open to students who have learned, from whatever source, enough Japanese to qualify for more advanced courses. Designed to strengthen communicative skills of listening, speaking, reading, and writing. Grammar reviews, vocabulary building skills, language learning skills, and sociocultural knowledge. P/NP or letter grading.

5. Intermediate Modern Japanese. (5) Lecture, five hours. Enforced requisite: course 4 with grade of C or better or Japanese placement test. Not open to students who have learned, from whatever source, enough Japanese to qualify for more advanced courses. Continuation of course 4. P/NP or letter grading.

6. Intermediate Modern Japanese. (5) Lecture, five hours. Enforced requisite: course 5 with grade of C or better or Japanese placement test. Not open to students who have learned, from whatever source, enough Japanese to qualify for more advanced courses. Continuation of course 5. P/NP or letter grading.

7. Intermediate Readings in Modern Japanese. (4) Lecture, three hours. Enforced requisite: course 5 or Japanese placement test. Not open to students with credit for course 100A or who have learned, from whatever source, enough Japanese to qualify for more advanced courses. Development of overall competency in reading intermediate-level Japanese mate-

rials. Instruction in understanding grammar and practical expressions, as well as expansion of *Kanji* and vocabulary to achieve higher ability in comprehension of written materials in Japanese. Translations from Japanese to English, as well as from English to Japanese. May be used to fulfill any two-year language requirement at UCLA, but course 6 must be taken to progress to 100A. P/NP or letter grading.

8. Elementary Japanese: Intensive. (15) Lecture, 10 hours; discussion, 10 hours. Not open to students who have learned, from whatever source, enough Japanese to qualify for more advanced courses. Intensive course equivalent to courses 1, 2, and 3. Introduction to fundamentals of standard Japanese, including pronunciation, grammar, and Japanese characters, with emphasis on all four basic language skills—speaking, listening comprehension, reading, and writing. Offered in summer only. P/NP or letter grading.

10. Intermediate Modern Japanese: Intensive. (15) Lecture, 10 hours; discussion, 10 hours. Enforced prerequisite: course 3 with grade of C or better or Japanese placement test. Not open to students who have learned, from whatever source, enough Japanese to qualify for more advanced courses. Intensive course equivalent to courses 4, 5, and 6. Readings in modern Japanese, with emphasis on comprehension and structural analysis. Offered in summer only. P/NP or letter grading.

50. Japanese Civilization. (5) Lecture, three hours; discussion, one hour. Knowledge of Japanese not required. Survey of development of Japanese culture and its relationship to Asiatic mainland. P/NP or letter grading.

70. Images of Japan: Literature and Film. (5) (Formerly numbered 60.) Lecture, three hours; discussion, one hour. Knowledge of Japanese culture, literature, or language not required. Introduction to visual and textual images of Japan's literary heritage, including documentary and feature films based on Japan's literary classics. Letter grading.

90. Japanese Aesthetics and Tea Ceremony. (4) Lecture, three hours. Knowledge of Japanese not required. Introduction to Japanese aesthetics in theory and practice, including study of ritual and specific trends in Japanese aesthetics such as imperfection asymmetry, suggestion, miniaturization, indirectness, *wabi*, *sabi*, *hiekare*, *yugen*, as reflected and practiced in tea ceremony. P/NP or letter grading.

Upper Division Courses

100A-100B-100C. Advanced Modern Japanese. (4-4-4) Lecture, five hours. Enforced prerequisite: course 6 or 10 with grade of C or better or Japanese placement test. Course 100A with grade of C or better or Japanese placement test is enforced prerequisite to 100B; course 100B with grade of C or better or Japanese placement test is enforced prerequisite to 100C. Not open to students who have learned, from whatever source, enough Japanese to qualify for more advanced courses. Learning Japanese language with emphasis on sociocultural issues of contemporary Japanese society. Materials selected from contemporary publications, videos, and audiotapes. Reading with focus on linguistics features, writing summaries and opinions, oral activities, and project work. P/NP or letter grading.

100I. Advanced Modern Japanese: Intensive. (12) Lecture, 10 hours; discussion, 10 hours. Enforced prerequisite: course 6 or 10 with grade of C or better or Japanese placement test. Not open to students who have learned, from whatever source, enough Japanese to qualify for more advanced courses. Intensive course equivalent to courses 100A, 100B, and 100C. Learning Japanese language with emphasis on sociocultural issues of contemporary Japanese society. Materials selected from contemporary publications, videos, and audiotapes. Reading with focus on linguistics features, writing summaries and opinions, oral activities, and project work. Offered in summer only. P/NP or letter grading.

101A-101B. Advanced Readings in Modern Japanese. (4-4) Lecture, three hours; discussion, one hour. Enforced prerequisite: course 100C or 100I or Japanese placement test. Not open to students who have learned, from whatever source, enough Japanese to qualify for more advanced courses. Advanced readings and discussion for students planning to do advanced coursework or research on Japan. Topics selected from magazines, journals, and books related to humanities and social sciences. Each course may be taken independently for credit. Letter grading.

102A-102B. Advanced Reading and Writing for Japanese-Heritage Speakers. (4-4) Lecture, three hours; discussion, one hour. Enforced preparation: Japanese placement test. Not open to students who have learned, from whatever source, enough Japanese to qualify for more advanced courses. Designed for advanced-level Japanese-heritage learners or nonheritage learners who are fluent in daily spoken Japanese. Emphasis on building vocabulary knowledge of *Kanji*, reading and writing, and formal aspects of spoken Japanese (polite and honorific/humble forms). Each course may be taken independently for credit. Students who complete courses 102A and/or 102B are not eligible to take Japanese 101 series or below. P/NP or letter grading.

103. Advanced Japanese for International Business. (4) Lecture, three hours; discussion, one hour. Enforced prerequisite: course 6 or 10 or Japanese placement test. Designed to improve skills in Japanese in context of business transactions. To be successful business person, one must be equipped with advanced specialized oral and written communication skills as well as high degree of cultural understanding. Oral and written business communication, social etiquette in business conduct, Japanese economic and business climate, business law and regulations, resources and environment, and business case studies. P/NP or letter grading.

108FL. Special Studies: Readings in Japanese. (2) Seminar, two hours. Enforced prerequisite: course 100C or 100I or Japanese placement test. Students must be concurrently enrolled in affiliated main course. Additional work in Japanese to augment work assigned in main course, including reading, writing, and other exercises. May be repeated for credit. P/NP or letter grading.

109. Advanced Tutorial Instruction in Japanese. (2) Tutorial, two hours. Prerequisite: course 100C or Japanese placement test. Tutorial and guided independent study to help students develop advanced to superior proficiency in oral and written Japanese. May be repeated for credit. P/NP or letter grading.

110. Introduction to Classical Japanese. (4) Lecture, three hours; discussion, one hour. Enforced prerequisite: course 100C or 100I or Japanese placement test. Introduction to fundamentals of classical Japanese. Grammar and reading of selected premodern texts. Letter grading.

C112. Japanese Urban History and Culture. (4) Lecture, three hours. Knowledge of Japanese not required. Japanese urban history and culture, with special emphasis on cities of Nara, Kyoto, Edo/Tokyo, and Nagasaki. Concurrently scheduled with course C212. P/NP or letter grading.

M120. Introduction to Japanese Linguistics. (4) (Same as Linguistics M116.) Lecture, three hours; discussion, one hour. Enforced prerequisite: course 3 or Japanese placement test. Introduction to Japanese grammar and sociolinguistics through reading, discussion, and problem solving in phonology, syntax, semantics, and discourse pragmatics. Letter grading.

CM122. Japanese Phonology and Morphology. (4) (Same as Linguistics M176A.) Lecture, three hours; discussion, one hour. Recommended preparation: two or more years of Japanese. Survey of Japanese phonetics, phonology, and morphology. Concurrently scheduled with course C222. Letter grading.

CM123. Structure of Japanese. (4) (Same as Linguistics M176B.) Lecture, three hours; discussion, one hour. Recommended preparation: two years of Japanese. Functional linguistic analysis of grammatical structures of Japanese, often in form of contrastive

analysis of Japanese, English, and other languages. Concurrently scheduled with course C223. Letter grading.

CM127. Contrastive Analysis of Japanese and Korean. (4) (Same as Korean CM127 and Linguistics M178.) Lecture, three hours. Recommended preparation: two years of Japanese or Korean, one introductory linguistics course. Critical reading and discussion of selected current research papers in syntax, pragmatics, discourse, and sociolinguistics from perspective of contrastive study of Japanese and Korean. May be repeated for credit with consent of instructor. Concurrently scheduled with course CM227. Letter grading.

130A-130B-130C. Readings in Modern Japanese Literature. (4-4-4) Seminar, three hours. Enforced prerequisite: course 100C or 100I or Japanese placement test. Readings and discussion of works by modern Japanese writers. Each course may be taken independently for credit. Letter grading.

C131. Nation in Modern Japanese Intellectual Discourse. (4) Lecture, three hours. Enforced prerequisite: course 100C or 100I or Japanese placement test. Reading of texts in original Japanese, with focus on late Taisho and early Showa periods. Various ways that nation (*minzoku*) was discussed in intellectual discourses of this period, particularly in relation to politics of imperialism. Concurrently scheduled with course C231. Letter grading.

140A-140B-140C. Readings in Classical Japanese Literature. (4-4-4) Seminar, three hours. Enforced prerequisite: course 110. Readings and discussion of works of classical, medieval, and early modern Japanese literature. Each course may be taken independently for credit. Letter grading. **140A.** Heian; **140B.** Medieval; **140C.** Edo.

C149. Introduction to Kambun and Other Literary Styles. (4) Lecture, three hours. Enforced prerequisite: course 110. Introduction to Kambun, Japanese literary rendering of premodern Sino-Japanese, and Sorobun, epistolary style. Concurrently scheduled with course C249. Letter grading.

C150. Topics in Japanese Literature and Philosophy. (4) Lecture, three hours; discussion, one hour. Knowledge of Japanese not required. Discussion of philosophical topics such as experience, identity, value, technology, in light of Japanese literary texts. Concurrently scheduled with course C250. Letter grading.

151. Japanese Literature in Translation: Modern. (4) Lecture, three hours; discussion, one hour. Prerequisite: English Composition 3 or 3H or one course from Comparative Literature 1A, 1B, 1C, 1D. Knowledge of Japanese not required. Survey of Japanese literature from 16th century to post-World War II. P/NP or letter grading.

154. Postwar Japanese Culture through Literature. (4) Lecture, three hours; discussion, one hour. Prerequisite: English Composition 3 or 3H or one course from Comparative Literature 1A, 1B, 1C, 1D. Knowledge of Japanese not required. Use of fiction and film to explore Japanese culture in postwar era in broad cross-disciplinary and cross-cultural context. P/NP or letter grading.

155. Topics in Japanese Cinema. (4) Lecture, three hours; film viewing, four hours. Knowledge of Japanese not required. Critical and historical examination of Japanese cinema. P/NP or letter grading.

M156. Literature and Technology. (4) (Same as Comparative Literature M176.) Lecture, three hours. Knowledge of Japanese not required. Examination of representation of technology in 20th-century fiction. Discussion of impact of technology on shifting images of gender, subjectivity, and national identity. P/NP or letter grading.

157. Classical Japanese Drama: Great Tradition. (4) Lecture, three hours. Knowledge of Japanese not required. Readings in major genres of Japanese theater and exploration of its influence on 20th-century drama and theater around world. Letter grading.

158. Love in Modern Japan. (4) Lecture, three hours. Examination of Japanese literary works (in English) and films that represent romantic love from late 19th century to present. P/NP or letter grading.

C160. Japanese Buddhism. (4) Lecture, three hours; discussion, one hour. Knowledge of Japanese not required. Development of Buddhism in Japan in its cultural context, with emphasis on key ideas and teachings. Concurrently scheduled with course C260. Letter grading.

161. Religious Life in Modern Japan. (4) Lecture, three hours; discussion, one hour. Knowledge of Japanese not required. Religious transformations accompanying rapid industrialization, urbanization, militarism, and defeat in the Pacific War, including analyses of Shinto mythology, secular positivism, Buddhist reform movements, new religions, and continuing role of traditional village/family religious rites. Letter grading.

165. Introduction to Japanese Buddhist Texts. (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 110 or Chinese 165 or Japanese placement test. Readings in premodern Buddhist texts written by Japanese in Sino-Japanese or Kam-bun and mixed Japanese/Chinese literary styles concerning textual commentaries, doctrinal treatises, hagiographies, temple histories, etc. Coverage varies. May be repeated for credit with consent of instructor. Letter grading.

170. Japanese Tales of Supernatural. (4) Lecture, three hours; discussion, one hour. Knowledge of Japanese not required. Readings of fictional works that feature supernatural beings, including Shinto gods, Buddhas, bodhisattvas, Yin-yang diviners, ghosts, various types of demons, shape-shifting foxes and raccoon dogs, snakes, and dragons. Exploration of different treatments of supernatural themes from ancient to modern times, and of relationship between supernatural literature and expressions of fear, cruelty, violence, misogyny, desire, hope, compassion, and humor. Letter grading.

C171. Topics in Japanese Studies. (4) Lecture, three hours. Enforced requisite: course 100C or Japanese placement test. Advanced course that explores Japanese culture through in-depth reading of Japanese-language texts and/or visual documents. Topics include literature, religion, folklore, cultural history, language, and society. Concurrently scheduled with course C271. P/NP or letter grading.

172. Fiction and Plays of Floating World. (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 50. Examination of broad selection of popular fiction and theater from late 17th to early 19th century, with focus on theme of floating world (*ukiyo*) of entertainment, including pleasure quarters, theater district, and realm of fiction. Letter grading.

175. Introduction to Japanese Thought. (4) Lecture, three hours. Knowledge of Japanese not required. General survey of Japanese thought from early to modern times, including analyses of Shinto mythology, forms of Confucianism, ethic of bushido, National Learning School, and modern Japanese philosophers such as Nishida Kitaro and Watsuji Tetsuro. Attention also to representative types of contemporary thinking about Japanese thought, especially question of what might qualify as recognizably "Japanese" in aesthetics, ethics, and philosophy. Letter grading.

C177. Introduction to Modern Japanese Aesthetics. (4) Lecture, three hours; discussion, one hour. Knowledge of Japanese not required. Introduction to field of modern and premodern Japanese aesthetics, with focus on hermeneutics of literary arts. Analysis of metalanguage in formulation of aesthetic judgment. Concurrently scheduled with course C277. P/NP or letter grading.

C180. Readings in Japanese Literary Thought. (4) Seminar, three hours. Enforced requisite: course 110. Reading and translation of commentaries of *monogatari* and *waka* from Heian, Kamakura, Muromachi, and Edo periods. Introduction to Japanese hermeneutics. Concurrently scheduled with course C280. Letter grading.

C182. Japanese Folklore. (4) Lecture, three hours; discussion, one hour. Knowledge of Japanese not required. Lectures/discussions on native religious rituals (festivals) and observances of Japanese, with special emphasis on artistic behavior. Discussion of

Shinto, Shinto/Buddhist syncretism, and other non-Buddhist belief systems. Concurrently scheduled with course C282. Letter grading.

C186. Seminar: Japanese Poetry and Philosophy. (4) Seminar, three hours. Recommended preparation: two years of Japanese. Reading and discussion of selected topics on philosophy of literary arts. May be repeated once with consent of instructor. Concurrently scheduled with course C286. Letter grading.

187SL. Service Learning in Japanese Community. (4) Lecture, three hours; fieldwork, three hours minimum. Enforced requisite: course 6. Service learning in Japanese community. Examination of scholarly works on cultural and language factors between Japanese and American communities. Survey of intercultural communication and learning of strategies for resolving miscommunication difficulties arising from language barrier and cultural differences while using language in real interaction with native speakers of Japanese. Letter grading.

191A. Variable Topics Research Seminars: Classical Japan. (4) Seminar, three hours. Research seminar on selected topics in premodern Japanese literature and thought. Reading, discussion, and development of culminating project. May be repeated for credit. Letter grading.

191B. Variable Topics Research Seminars: Modern Japan. (4) Seminar, three hours. Research seminar on selected topics on modern Japan. Reading, discussion, and development of culminating project. May be repeated for credit. Letter grading.

191C. Variable Topics Research Seminars: Personalities in Japanese Civilization. (4) Seminar, three hours. Research seminar on selected topics. Reading, discussion, and development of culminating project. May be repeated for credit. Letter grading.

197. Individual Studies in Japanese. (4) Tutorial, to be arranged. Limited to juniors/seniors and graduate students who desire more advanced or specialized instruction in Japanese. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required; see undergraduate adviser. P/NP or letter grading.

Graduate Courses

200. Japanese Studies Seminar. (4) Seminar, three hours. Selected topics on introduction to major bibliographical and methodological resources in field of Japanese studies. May be repeated for credit with topic change. Letter grading.

201A-201B. Introduction to Reading Japanese Academic Texts. (4-4) Lecture, three hours. Requisite: course 7 or 100A. Course 201A is requisite to 201B. Designed for graduate students. Introduction to modern Japanese-language academic texts, both prewar and postwar, with focus only on reading; students who need to improve other skills should take additional courses. S/U or letter grading.

210. Issues in Modern Japanese Literature. (4) Lecture, three hours. Introduction to issues in field of modern Japanese literature, with readings in primary and secondary sources. Topics vary. Letter grading.

211. No and Kyogen. (4) Lecture, three hours. Preparation: one year of classical Japanese. Readings of selected No and Kyogen texts from Muromachi and Edo periods, as well as readings of critical writings and discussion of theories. May be repeated for credit with consent of instructor. Letter grading.

C212. Japanese Urban History and Culture. (4) Lecture, three hours. Knowledge of Japanese not required. Japanese urban history and culture, with special emphasis on cities of Nara, Kyoto, Edo/Tokyo, and Nagasaki. Concurrently scheduled with course C112. S/U or letter grading.

C222. Japanese Phonology and Morphology. (4) Lecture, three hours; discussion, one hour. Recommended preparation: two or more years of Japanese. Survey of Japanese phonetics, phonology, and morphology. Concurrently scheduled with course CM122. Letter grading.

C223. Structure of Japanese. (4) Lecture, three hours; discussion, one hour. Recommended preparation: two years of Japanese. Functional linguistic analysis of grammatical structures of Japanese, often in form of contrastive analysis of Japanese, English, and other languages. Concurrently scheduled with course CM123. Letter grading.

224A-224B. Seminars: Selected Topics in Japanese Discourse Linguistics. (4-4) Seminar, three hours. Requisite: course CM122. Critical reading and discussion of selected topics in Japanese discourse linguistics. May be repeated for credit with consent of instructor. In Progress (224A) and letter (224B) grading.

225A-225B. Seminars: Linguistic Analysis of Japanese Narratives. (4-4) Seminar, three hours. Requisite: course CM122. Analysis of selected modern and classical Japanese narratives. Emphasis on exploration of how grammatical features such as tense, aspect, voice, and point of view are utilized to achieve desired literary effects. May be repeated for credit with consent of instructor. In Progress (225A) and letter (225B) grading.

226. Survey of Functional Linguistics. (4) Lecture, four hours. Survey of recent empirical and theoretical research in several areas of functional linguistics, that has served as backbone for development of Japanese discourse linguistics. May be repeated for credit with consent of instructor. S/U or letter grading.

CM227. Contrastive Analysis of Japanese and Korean. (4) (Same as Korean CM227.) Lecture, three hours. Recommended preparation: two years of Japanese or Korean, one introductory linguistics course. Critical reading and discussion of selected current research papers in syntax, pragmatics, discourse, and sociolinguistics from perspective of contrastive study of Japanese and Korean. May be repeated for credit with consent of instructor. Concurrently scheduled with course CM127. Letter grading.

228. Fundamentals in Discourse Data Analysis. (4) Lecture, three hours. Designed to prepare students to conduct research in natural discourse data, both spoken and written, for linguistic analysis. Discussion of discourse taxonomy, data collection methodologies, data organization, analytical frameworks.

C231. Nation in Modern Japanese Intellectual Discourse. (4) Lecture, three hours. Enforced requisite: course 100C or 100I or Japanese placement test. Reading of texts in original Japanese, with focus on late Taisho and early Showa periods. Various ways that nation (*minzoku*) was discussed in intellectual discourses of this period, particularly in relation to politics of imperialism. Concurrently scheduled with course C131. Letter grading.

235A-235B. Seminars: Selected Topics in Modern Japanese Fiction. (4-4) Seminar, three hours. May be repeated for credit with consent of instructor. In Progress (235A) and letter (235B) grading.

240A-240B. Seminars: Selected Topics in Japanese Literature. (4-4) Seminar, three hours. May be repeated for credit. In Progress (240A) and letter (240B) grading.

241A-241B. Seminars: Japanese Classics. (4-4) Seminar, three hours. Prose and poetry from early times to 1868. May be repeated for credit with consent of instructor. In Progress (241A) and letter (241B) grading.

243. Translation Workshop: Premodern Japanese Texts. (2) Seminar, two hours. Requisite: course 200B. Translation, grammatical analysis, and discussion of selections from premodern Japanese texts. S/U grading.

245A-245B. Seminars: Medieval Japanese Literature. (4-4) Seminar, three hours. Preparation: one year of classical Japanese. Selected readings in travel poetry, travel diaries, and other genres of Japanese travel literature of Heian, Kamakura, Nambokucho,

and Muromachi periods. May be repeated for credit with consent of instructor. In Progress (245A) and letter (245B) grading.

C249. Introduction to Kambun and Other Literary Styles. (4) Lecture, three hours. Requisite: course 110. Introduction to Kambun, Japanese literary rendering of premodern Sino-Japanese, and Sorobun, epistolary style. Concurrently scheduled with course C149. Letter grading.

C250. Topics in Japanese Literature and Philosophy. (4) Lecture, three hours; discussion, one hour. Knowledge of Japanese not required. Discussion of philosophical topics such as experience, identity, value, technology, in light of Japanese literary texts. Concurrently scheduled with course C150. Letter grading.

C260. Japanese Buddhism. (4) Lecture, three hours; discussion, one hour. Knowledge of Japanese not required. Development of Buddhism in Japan in its cultural context, with emphasis on key ideas and teachings. Concurrently scheduled with course C160. Letter grading.

265A-265B. Seminars: Japanese Buddhist Texts. (4-4) Seminar, three hours. May be repeated for credit with consent of instructor. In Progress (265A) and letter (265B) grading.

270A-270B. Seminars: Japanese Ritual Arts. (4-4) Seminar, three hours. Reading knowledge of Japanese not required. Discussions and readings on ritual (performing) arts of Japan comprising music, dance, storytelling, viewing, purification, divination, disguise, mimicry, and competitive as well as acrobatic arts, with special emphasis on religio-magical purposes and symbolic structure of these arts. In Progress (270A) and letter (270B) grading.

C271. Topics in Japanese Studies. (4) Lecture, three hours. Requisite: course 100C or Japanese placement test. Advanced course that explores Japanese culture through in-depth reading of Japanese-language texts and/or visual documents. Topics include literature, religion, folklore, cultural history, language, and society. Concurrently scheduled with course C171. S/U or letter grading.

M276. Reading Modern Bodies. (4) (Same as Comparative Literature M276.) Seminar, three hours. Designed for graduate students. Exploration of construction of human body through various modern technologies and discourses, including those of disease, diet, race, gender, and sexuality. Examination of texts from variety of locales, with particular emphasis on Japan. S/U or letter grading.

C277. Introduction to Modern Japanese Aesthetics. (4) Lecture, three hours; discussion, one hour. Knowledge of Japanese not required. Introduction to field of modern and premodern Japanese aesthetics, with focus on hermeneutics of literary arts. Analysis of metalanguage in formulation of aesthetic judgment. Concurrently scheduled with course C177. S/U or letter grading.

C280. Readings in Japanese Literary Thought. (4) Seminar, three hours. Requisite: course 110. Reading and translation of commentaries of *monogatari* and *waka* from Heian, Kamakura, Muromachi, and Edo periods. Introduction to Japanese hermeneutics. Concurrently scheduled with course C180. Letter grading.

C282. Japanese Folklore. (4) Lecture, three hours; discussion, one hour. Knowledge of Japanese not required. Lectures/discussions on native religious rituals (festivals) and observances of Japanese, with special emphasis on artistic behavior. Discussion of Shinto, Shinto/Buddhist syncretism, and other non-Buddhist belief systems. Concurrently scheduled with course C182. Letter grading.

C286. Seminar: Japanese Poetry and Philosophy. (4) Seminar, three hours. Recommended preparation: two years of Japanese. Reading and discussion of selected topics on philosophy of literary arts. May be repeated once with consent of instructor. Concurrently scheduled with course C186. Letter grading.

288. Reading Japanese Space. (4) Seminar, three hours. Knowledge of Japanese required. Designed for graduate students. Examination of issues related to notion of *kansei* (*aisthesis*), with particular regard to

impact that transformation of space from premodern to modern times has had on perceptions and understanding of surrounding reality. Discussion of different space formations such as spaces of privacy, intimacy, seclusion, and religiosity. Major sources from literary texts (ancient and modern), premodern debates on arts, and works by modern and contemporary Japanese philosophers. Letter grading.

297A. Seminar: Premodern Japan. (4) Seminar, three hours. Selected topics on premodern Japan. Letter grading.

297B. Seminar: Modern Japan. (4) Seminar, three hours. Selected topics on modern Japan. Letter grading.

Korean

Lower Division Courses

1. Elementary Modern Korean. (5) Lecture, two hours; discussion, three hours. Not open to students who have learned, from whatever source, enough Korean to qualify for more advanced courses. Introduction to standard spoken Korean and Korean writing, with emphasis on conversation. P/NP or letter grading.

1A. Elementary Korean for Korean-Heritage Speakers. (5) Lecture, two hours; discussion, three hours. Not open to students who have learned, from whatever source, enough Korean to qualify for more advanced courses. Designed for Korean-heritage learners who have very limited knowledge in Korean language or have had no formal instruction in it. Emphasis on spelling, basic grammar, reading, writing, and daily conversation. P/NP or letter grading.

2. Elementary Modern Korean. (5) Lecture, two hours; discussion, three hours. Enforced requisite: course 1 with grade of C or better or Korean placement test. Not open to students who have learned, from whatever source, enough Korean to qualify for more advanced courses. Continuation of course 1. P/NP or letter grading.

2A. Elementary Korean for Korean-Heritage Speakers. (5) Lecture, two hours; discussion, three hours. Enforced requisite: course 1A with grade of C or better or Korean placement test. Not open to students who have learned, from whatever source, enough Korean to qualify for more advanced courses. Designed for students who are from Korean-speaking family background and have some limited knowledge of Korean. Emphasis on formal aspects of standard Korean (basic grammar, reading, daily conversation, polite forms, basic writing). P/NP or letter grading.

3. Elementary Modern Korean. (5) Lecture, two hours; discussion, three hours. Enforced requisite: course 2 with grade of C or better or Korean placement test. Not open to students who have learned, from whatever source, enough Korean to qualify for more advanced courses. Continuation of course 2. P/NP or letter grading.

3A. Elementary Korean for Korean-Heritage Speakers. (5) Lecture, two hours; discussion, three hours. Enforced requisite: course 2A with grade of C or better or Korean placement test. Not open to students who have learned, from whatever source, enough Korean to qualify for more advanced courses. Continuation of course 2A. P/NP or letter grading.

4. Intermediate Modern Korean. (5) Lecture, five hours. Enforced requisite: course 3 with grade of C or better or Korean placement test. Not open to students who have learned, from whatever source, enough Korean to qualify for more advanced courses. Continuation of course 3. Conversation, composition, and readings with structural analysis in modern Korean. P/NP or letter grading.

4A. Intermediate Korean for Korean Speakers. (5) Lecture, five hours. Enforced requisite: course 3A with grade of C or better or Korean placement test. Not open to students who attended elementary school in Korea for more than one year or who have learned, from whatever source, enough Korean to qualify for more advanced courses. Designed for students who seek training in written components of standard Korean

(spelling, reading, writing, and grammar) at intermediate level. Continuation of course 3A. P/NP or letter grading.

5. Intermediate Modern Korean. (5) Lecture, five hours. Enforced requisite: course 4 with grade of C or better or Korean placement test. Not open to students who have learned, from whatever source, enough Korean to qualify for more advanced courses. Continuation of course 4. P/NP or letter grading.

5A. Intermediate Korean for Korean Speakers. (5) Lecture, five hours. Enforced requisite: course 4A with grade of C or better or Korean placement test. Not open to students who attended elementary school in Korea for more than one year or who have learned, from whatever source, enough Korean to qualify for more advanced courses. Designed for Korean-heritage learners. Emphasis on four skills (spelling, grammar, readings, and conversation in modern Korean). P/NP or letter grading.

6. Intermediate Modern Korean. (5) Lecture, five hours. Enforced requisite: course 5 with grade of C or better or Korean placement test. Not open to students who have learned, from whatever source, enough Korean to qualify for more advanced courses. Continuation of course 5. P/NP or letter grading.

6A. Intermediate Korean for Korean Speakers. (5) Lecture, five hours. Enforced requisite: course 5A with grade of C or better or Korean placement test. Not open to students who attended elementary school in Korea for more than one year or who have learned, from whatever source, enough Korean to qualify for more advanced courses. Designed for Korean-heritage learners. Emphasis on four skills (spelling, grammar, readings, and conversation in modern Korean). Continuation of course 5A. Completion of course 6A is equivalent to completion of course 6. P/NP or letter grading.

8. Elementary Korean: Intensive. (15) Lecture, 10 hours; discussion, 10 hours. Not open to students who have learned, from whatever source, enough Korean to qualify for more advanced courses. Intensive course equivalent to courses 1, 2, and 3. Introduction to fundamentals of standard Korean, including pronunciation, grammar, and Korean characters, with emphasis on all four basic language skills—speaking, listening comprehension, reading, and writing. Offered in summer only. P/NP or letter grading.

10. Intermediate Modern Korean: Intensive. (15) Lecture, 10 hours; discussion, 10 hours. Enforced requisite: course 3 or 8 with grade of C or better or Korean placement test. Not open to students who have learned, from whatever source, enough Korean to qualify for more advanced courses. Intensive course equivalent to courses 4, 5, and 6. Conversation, composition, and readings with structural analysis in modern Korean. Offered in summer only. P/NP or letter grading.

50. Korean Civilization. (5) Lecture, three hours; discussion, one hour. Knowledge of Korean not required. General survey of development of Korean culture within context of political, social, and economic history. P/NP or letter grading.

60. Introduction to Korean Religions. (5) Lecture, three hours; discussion, one hour. Knowledge of Asian languages not required. General survey of history of religions in Korea—Shamanism, Buddhism, Confucianism, Daoism, Christianity, Tonghak, and some new religions—with focus on religious doctrines, practices, Korean characteristics, and social impacts. P/NP or letter grading.

Upper Division Courses

100A-100B-100C. Advanced Modern Korean. (4-4-4) Lecture, five hours. Enforced requisite: course 6, 6A, or 10 with grade of C or better or Korean placement test. Course 100A with grade of C or better or Korean placement test is enforced requisite to 100B; course 100B with grade of C or better or Korean placement test is enforced requisite to 100C. Not open to students who have learned, from whatever source, enough Korean to qualify for more advanced courses. Continuation of courses 6/6A. Readings of

modern prose and poetry, with emphasis on grammar and Sino-Korean. P/NP (undergraduates), S/U (graduates), or letter grading.

101A-101B-101C. Advanced Readings in Modern Korean. (4-4-4) Lecture, three hours. Enforced requisite: course 100C or Korean placement test. Course 101A or Korean placement test is enforced requisite to 101B; course 101B or Korean placement test is enforced requisite to 101C. Advanced readings and discussion for students planning to do advanced coursework or research on Korea. Topics selected from magazines, journals, and books related to humanities and social sciences. P/NP (undergraduates), S/U (graduates), or letter grading.

101I. Advanced Readings in Modern Korean: Intensive. (12) Lecture, 15 hours. Enforced requisite: course 100C or Korean placement test. Intensive course equivalent to courses 101A, 101B, and 101C. Learning advanced Korean language with emphasis on pop culture and social issues of contemporary Korean society. Expansion of Korean literacy and cultural knowledge by examining Korean films/drama, newspapers, and other contemporary publications. Offered in summer only. P/NP or letter grading.

102A-102B-102C. Advanced Korean Conversation. (4-4-4) Lecture, three hours. Enforced requisite: course 100C or Korean placement test. Course 102A or Korean placement test is enforced requisite to 102B; course 102B or Korean placement test is enforced requisite to 102C. Not open to students who attended elementary school in Korea for more than two years or who have learned, from whatever source, enough Korean to qualify for more advanced courses. Reading and discussion of modern Korean authors, designed to further improve spoken proficiency. P/NP or letter grading.

103A-103B-103C. Readings in Sino-Korean Characters. (4-4-4) Lecture, three hours. Requisite: course 100C or Korean placement test. Course 103A or Korean placement test is requisite to 103B; course 103B or Korean placement test is requisite to 103C. Sino-Korean vocabulary and characters necessary for advanced and superior level of knowledge in Korean. Sino-Korean characters are used differently from same Chinese characters used in contemporary China in terms of pronunciation, meaning, and word formation. Professional-level Korean speakers need to be able to read at least 1,800 Sino-Korean characters. Reinforcement of collocation patterns and semantic association of Sino-Korean vocabulary. P/NP or letter grading.

104A-104B-104C. Korean Writing for Advanced Learners. (4-4-4) Lecture, three hours. Enforced requisite: course 100C or Korean placement test. Emphasis on academic writing in Korean, including rhetorical conventions, argument construction and coherence, and development of prose style. Readings include representative examples of diverse genres selected from magazines, journals, and books. Each course may be taken independently for credit. P/NP (undergraduates), S/U (graduates), or letter grading.

C105A-C105B-C105C. Reading Korean Academic Texts. (4-4-4) Lecture, three hours. Enforced requisite: course 101C or Korean placement test. Intended to improve reading skills for students who have studied Korean to advanced level, with coverage in Korean of materials on Korean history, culture, and society. Each course may be taken independently for credit. Concurrently scheduled with courses C205A-C205B-C205C. P/NP or letter grading.

106A-106B-106C. Superior Korean. (4-4-4) Lecture, three hours. Recommended preparation: course 101C. May not be taken concurrently with course 102A, 102B, or 102C. Use of speaking, listening, reading, and writing skills to participate effectively, or understand without difficulty any practical, social, and professional topics, whether those topics are familiar or not. Each course may be taken independently for credit. P/NP or letter grading.

107A-107B-107C. Professional/Academic Korean. (4-4-4) Lecture, three hours. Requisite: course 101C or Korean placement test. Course 107A or Korean placement test is requisite to 107B; course 107B or

Korean placement test is requisite to 107C. May not be taken concurrently with courses 102A-102B-102C. Development of professional and academic proficiency in oral and written Korean to understand many sociolinguistic and cultural references as well as variety of styles and forms pertinent to professional needs, meet demands of professional interactions, and carry out professional-level tasks in student specialization areas. Special attention to vocabulary development on professional level. Development of both interactive and noninteractive listening. Research projects to be assigned according to student interests. P/NP or letter grading.

108FL. Special Studies: Readings in Korean. (2) Seminar, two hours. Enforced requisite: course 100C or Korean placement test. Students must be concurrently enrolled in affiliated main course. Additional work in Korean to augment work assigned in main course, including reading, writing, and other exercises. May be repeated for credit. P/NP or letter grading.

109. Advanced Tutorial Instruction in Korean. (2) Tutorial, two hours. Requisite: course 100C or Korean placement test. Tutorial and guided independent study to help students develop advanced to superior proficiency in oral and written Korean. May be repeated for credit. P/NP or letter grading.

CM120. Structure of Korean. (4) (Same as Linguistics M177.) Lecture, three hours. Recommended preparation: two years of Korean, or one year of Korean and some knowledge of linguistics. Discussion of major syntactic, semantic, and pragmatic characteristics of Korean in light of linguistic universals, with brief introduction to formation, typological features, and phonological structure of Korean. Concurrently scheduled with course C220. Letter grading.

CM127. Contrastive Analysis of Japanese and Korean. (4) (Same as Japanese CM127 and Linguistics M178.) Lecture, three hours. Recommended preparation: two years of Japanese or Korean, one introductory linguistics course. Critical reading and discussion of selected current research papers in syntax, pragmatics, discourse, and sociolinguistics from perspective of contrastive study of Japanese and Korean. May be repeated for credit with consent of instructor. Concurrently scheduled with course CM227. Letter grading.

130A-130B. Readings in Modern Korean Literature. (4-4) Lecture, three hours. Enforced requisites: course 100C or Korean placement test, English Composition 3 or 3H or one course from Comparative Literature 1A, 1B, 1C, 1D. Readings and discussion of major modern Korean literary texts. Each course may be taken independently for credit. Letter grading.

C149. Readings of Sino-Korean and Korean Sources of Modern Korea. (4) Seminar, three hours. Recommended preparation: reading knowledge of Korean and basic classical Chinese. Readings and discussions of Sino-Korean and Korean texts published in modern Korean newspapers, magazines, and books from 1885 to 1970. Concurrently scheduled with course C249. Letter grading.

150. Korean Literature in Translation: Classical. (4) Lecture, three hours. Requisite: English Composition 3 or 3H or one course from Comparative Literature 1A, 1B, 1C, 1D. Knowledge of Korean not required. Survey of premodern Korean literature from beginning to 19th century. P/NP or letter grading.

151. Korean Literature in Translation: Modern. (4) Lecture, three hours. Requisite: English Composition 3 or 3H or one course from Comparative Literature 1A, 1B, 1C, 1D. Knowledge of Korean not required. Survey of Korean literature of 20th century. P/NP or letter grading.

155. Topics in Korean Cinema. (4) Lecture, one hour; discussion, one hour; film viewing, three hours. Knowledge of Korean not required. Historical and critical survey of Korean cinema, examining intersection between 20th-century Korean history, politics, and filmmaking. P/NP or letter grading.

C160. Korean Buddhism. (4) Lecture, three hours; discussion, one hour. Knowledge of Korean not required. Introduction and development of Buddhism in Korea, interactions between indigenous Korean cul-

ture and Sinitic traditions of Buddhism, Korean syntheses of imported Buddhist theological systems and meditative techniques, and independent Son (Zen) schools of Korea. Concurrently scheduled with course C260. Letter grading.

165. Introduction to Korean Buddhist Texts. (4) Lecture, three hours; discussion, one hour. Recommended requisite: course 100A or Chinese 110C or Korean placement test. Introduction to reading premodern Korean Buddhist texts written in Sino-Korean and taken from indigenous doxographic materials and philosophical writings, Korean Buddhist apocryphal scriptures, native exegetical commentaries, and Son (Zen) texts. Coverage varies. Texts may be read in either Sino-Korean or literary Chinese. May be repeated with consent of instructor. Letter grading.

172. Topics in Korean Christianity. (4) Lecture, three hours; discussion, one hour. Knowledge of Korean not required. Historical development of Christianity in Korea, beliefs and practices, impact of Christianity on modern Korean culture and society. Coverage varies. May be repeated for credit with consent of instructor. Letter grading.

175. Introduction to Traditional Korean Thought. (4) Lecture, three hours; discussion, one hour. Knowledge of Korean not required. General survey of Korean thought from earliest records to 19th century, including shamanism, Taoism, Buddhism, Christianity, and neo-Confucianism. Korean traditions and those found in India, China, Japan, and West. P/NP or letter grading.

176. Introduction to Korean Confucian Texts. (4) Lecture, three hours. Enforced requisite: course 100C or Chinese 110C or Korean placement test. Reading in premodern Koryo and Choson texts on politics, society, and culture. Coverage varies. Texts may be read in either Sino-Korean or literary Chinese. May be repeated with consent of instructor. P/NP or letter grading.

177. Introduction to Modern Korean Thought. (4) Lecture, three hours; discussion, one hour. Requisite: course 50. Knowledge of Korean not required. Survey of Korean thought in late 19th and 20th centuries, including religious thought, political thought, feminism, nationalism, and economic thinking and practice. P/NP or letter grading.

178. Introduction to Modern Korean Historiography. (4) Seminar, three hours. Enforced requisite: course 101A or C105A or Korean placement test. Introduction to major Korean language historiographical works on Korean history in modern period. Coverage varies. May be repeated with consent of instructor. P/NP or letter grading.

180A-180B-180C. Cultural History of Korea. (4-4-4) Lecture, three hours; discussion, one hour. Requisite: course 50. Knowledge of Korean not required. Examination of evolution of Korean culture and society within context of political and institutional industry. Consideration of both higher and popular culture. P/NP or letter grading. **180A.** Through 1259; **180B.** 1260 through 1876; **180C.** Since 1876.

181. Reading Korean Cultural Landscape. (4) Lecture, three hours; discussion, one hour. Knowledge of Korean not required. Introduction to Korean culture from historical/geographical perspective. Examination of human cultural imprint on land in religious, linguistic, rural, and urban landscapes. Letter grading.

182. 1894 Kabo Reforms. (4) Seminar, three hours. Knowledge of Korean not required. Examination of modernizing reforms adopted in Korea in 1894. Consideration of conflict among radical Westernizers who had studied in Japan and U.S., moderate reformers who followed Chinese model of adopting Western technology to defend Confucian order, and orthodox Confucians who strongly opposed any changes. Focus on historical and intellectual background in first half, with debates among students who assume roles in Deliberative Council that was responsible for designing reforms in second half. Letter grading.

183. Korean Folklore. (4) Lecture, three hours; discussion, one hour. Survey of Korean folklore and its perspectives and methods—oral literature, performing folk arts, social folk custom, and material culture. P/NP or letter grading.

187. Popular and Folk Religion in Korea. (4) Lecture, three hours. Knowledge of Korean not required. Introduction to history, forms, and scholarship concerning folk religion in Korea. Exploration of forms of popular and folk religion in Korea, including shamanism, ancestor worship, and contemporary religions. Consideration of fortune-telling, geomancy, and spirit belief. P/NP (undergraduates), S/U (graduates), or letter grading.

191A. Variable Topics Research Seminars: Traditional Korea. (4) Seminar, three hours. Research seminar on selected topics of interpretation in Korean history from earliest times through mid-19th century. Coverage varies from term to term and includes such topics as state formation, international relations, or “sprouts of capitalism” thesis. Reading, discussion, and development of culminating project. May be repeated for credit. Letter grading.

191B. Variable Topics Research Seminars: Contemporary Korean Society and Culture. (4) Seminar, three hours. Requisite: course 177 or 180C. Research seminar on selected topics in modern Korean history. Reading, discussion, and development of culminating project. May be repeated for credit. Letter grading.

197. Individual Studies in Korean. (4) Tutorial, to be arranged. Limited to juniors/seniors and graduate students who desire more advanced or specialized instruction in Korean. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required; see undergraduate adviser. P/NP or letter grading.

Graduate Courses

200. Bibliography and Methods of Research in Korean. (4) Lecture, three hours. Requisites: course 101C, Chinese 110C. Review of basic Western and modern Korean reference books, with concentration on Korean literature and language, and survey of basic bibliographical material. In addition, introduction to most important primary sources in student's field of specialization. Letter grading.

203. Variable Topics in Korean Culture. (4) Seminar, three hours. Advanced course that explores Korean culture through in-depth reading of Korean-language texts and/or visual documents. Topics include literature, religion, folklore, cultural history, language, and society. May be repeated for credit. S/U or letter grading.

C205A-C205B-C205C. Reading Korean Academic Texts. (4-4-4) Lecture, three hours. Requisite: course 101C or Korean placement test. Intended to improve reading skills for students who have studied Korean to advanced level, with coverage in Korean of materials on Korean history, culture, and society. Each course may be taken independently for credit. Concurrently scheduled with courses C105A-C105B-C105C. S/U or letter grading.

210. Thought and Society in Korea. (4) Readings/discussion, three hours. Preparation: reading knowledge of Korean. Designed for graduate students. Readings in Korean intellectual history and its social, political, and economic background from rise of neo-Confucianism in 14th century to 20th century. Letter grading.

211. Thought and Society in Modern Korea. (4) Discussion, three hours. Preparation: reading knowledge of Korean. Designed for graduate students. Critical examination of list of books central to field of modern Korean history, including such topics as Korean capitalism and communism, intellectual history, social movements, and Korean War. Letter grading.

212. 19th-Century Korea. (4) Seminar, three hours; discussion, one hour. Requisite: course 180B or 180C. Proseminar covering crucial period from coro-

nation of Sunjo in 1800 to annexation of Korea by Japan in 1910, including major historical scholarship on political, diplomatic, social, economic, intellectual, and cultural history. Letter grading.

215. Korean Literary History. (4) Lecture, three hours. Designed for graduate students. Critical history of development of traditional Korean literature, with emphasis on canon and ideology, literary systems, hierarchy of genres, rise of literary kinds and forms, periodization, and critical issues in literary history. One particular area of focus to be nationalist canon that governs literary studies in Korea and West. Letter grading.

C220. Structure of Korean. (4) Lecture, three hours; discussion, two hours. Recommended preparation: two years of Korean, or one year of Korean and some knowledge of linguistics. Discussion of major syntactic, semantic, and pragmatic characteristics of Korean in light of linguistic universals, with brief introduction to formation, typological features, and phonological structure of Korean. Concurrently scheduled with course CM120. Letter grading.

224A-224B. Seminars: Selected Topics in Korean Linguistics. (4-4) Seminar, three hours. Critical reading and discussion of selected topics in Korean functional linguistics (grammaticalization, discourse, pragmatics, sociolinguistics, syntax, morphology) and pedagogy. In Progress (224A) and letter (224B) grading.

225. Korean Corpus Linguistics and Language Pedagogy. (4) Seminar, three hours. Introduction to corpus-based discourse and grammatical analysis using Korean corpora and concordancing programs. Special emphasis on development of corpus-based activities for language teaching and curriculum design. S/U or letter grading.

CM227. Contrastive Analysis of Japanese and Korean. (4) (Same as Japanese CM227.) Lecture, three hours. Recommended preparation: two years of Japanese or Korean, one introductory linguistics course. Critical reading and discussion of selected current research papers in syntax, pragmatics, discourse, and sociolinguistics from perspective of contrastive study of Japanese and Korean. May be repeated for credit with consent of instructor. Concurrently scheduled with course CM127. Letter grading.

230A-230B. Seminars: Literary Translation from Korean. (4-4) Seminar, three hours. Preparation: reading knowledge of Korean. In consultation with instructor, students select works to be translated. Devoted to skill of producing accurate and readable translations, with emphasis on problems and techniques unique to poetry and prose. At end of term, students expected to produce publishable translations. May be repeated once with consent of instructor. In Progress (230A) and letter (230B) grading.

235A-235B. Seminars: Topics in Modern Korean Literature. (4-4) Seminar, three hours. Preparation: at least five years of Korean. Recommended: reading knowledge of Chinese or Japanese. Limited to graduate students. Study of selected period, movement, theme, or author of 20th-century Korean literature, with critical review of secondary works in Western and Korean languages. May be repeated for credit with consent of instructor. In Progress (235A) and letter (235B) grading.

240A-240B. Seminars: Classical Korean Fiction. (4-4) Seminar, three hours. Preparation: reading knowledge of Korean. Formal and thematic study of tales of marvelous, romance, satirical stories, diaries, and *p'ansori* fiction. Status of fiction in society and culture, fiction as imaginative representation of writer's relationship to real conditions of existence. Latest Western theory of narratology applied in analysis. In Progress (240A) and letter (240B) grading.

243. Translation Workshop: Premodern Korean Texts. (2) Seminar, two hours. Requisite: course 200. Translation, grammatical analysis, and discussion of selections from premodern Korean texts. S/U grading.

245A-245B. Seminars: Classical Korean Poetry. (4-4) Seminar, three hours. Preparation: reading knowledge of Korean. Critical reading and analysis of classical Korean poetry, including discussion of literary and cultural contexts of poetic genres. Nature of

codes, conventions that make meaning possible. Review of latest Korean scholarship. May be repeated once with consent of instructor. In Progress (245A) and letter (245B) grading.

248. Reading Korean Scholarly Journals: Social and Cultural Change as Reflected in Academic Discourse. (4) Seminar, three hours. Recommended preparation: basic reading knowledge of Korean. Reading of recently published academic journal articles in Korean language. Coverage of rapidly changing multiple Korean identities and related issues in family, marriage, gender, urban poverty, and religious culture in context of globalization and neoliberalism. Special attention to minority groups. S/U or letter grading.

C249. Readings of Sino-Korean and Korean Sources of Modern Korea. (4) Seminar, three hours. Recommended preparation: reading knowledge of Korean and basic classical Chinese. Readings and discussions of Sino-Korean and Korean texts published in modern Korean newspapers, magazines, and books from 1885 to 1970. Concurrently scheduled with course C149. Letter grading.

C260. Korean Buddhism. (4) Lecture, three hours; discussion, one hour. Knowledge of Korean not required. Introduction and development of Buddhism in Korea, interactions between indigenous Korean culture and Sinitic traditions of Buddhism, Korean syntheses of imported Buddhist theological systems and meditative techniques, and independent Son (Zen) schools of Korea. Concurrently scheduled with course C160. Letter grading.

265A-265B. Seminars: Korean Buddhist Texts. (4-4) Seminar, three hours. Selected topics in Korean Buddhist texts. Coverage varies. In Progress (265A) and letter (265B) grading.

272. Seminar: Korean Christianity. (4) Seminar, three hours. Coverage of representative scholars' writings on history of Korean Christianity, with focus on Protestantism. Issues include politics, identities of Korean Christians and Western missionaries, church growth and decline, medical, educational, literary, and woman's work, and Christianity's encounters with Korean religions, and foreign missions. S/U or letter grading.

295A-295B. Seminars: Topics in Traditional Korean Cultural History. (4-4) Seminar, three hours. Preparation: reading knowledge of Korean or literary Chinese. Discussion and research on major topics in Korean cultural history, such as Confucianization of Korean society, Practical Learning movement of late Choson dynasty, or Korean reactions to West in Eastern learning and enlightenment movements of 19th century. May be repeated for credit. In Progress (295A) and letter (295B) grading.

296A-296B. Seminars: Topics in Modern Korean Cultural History. (4-4) Seminar, three hours. Preparation: reading knowledge of Korean. Designed for graduate students. Graduate research seminar on selected topics in modern Korean history. In Progress (296A) and letter (296B) grading.

South Asian

Lower Division Course

60. Religion in Classical India: Introduction. (5) Lecture, three hours; discussion, one hour. Introduction to religions of classical India—Vedic, Brahmanical, Hindu, Jain, and Buddhist—paying equal attention to change and continuity, with emphasis on chronological development. P/NP or letter grading.

Upper Division Courses

110A. Elementary Sanskrit. (4) Lecture, three hours. Introduction to script and grammar, with reading exercises and attention to significance of Sanskrit for understanding of other Indo-European languages. P/NP or letter grading.

110B. Intermediate Sanskrit. (4) Lecture, three hours. Requisite: course 110A. Advanced aspects of grammar and reading of literary texts. P/NP or letter grading.

110C. Advanced Sanskrit. (4) Lecture, three hours. Requisite: course 110B. Reading of entire *Bhagavadgita* or comparable amount of other Sanskrit literature. P/NP or letter grading.

115. Readings in Sanskrit. (4) Lecture, three hours. Requisite: course 110C. Extensive reading in such texts as best serve students' needs. May be repeated for credit with consent of instructor. P/NP (undergraduates), S/U (graduates), or letter grading.

150. Classical Indian Literature in Translation. (4) Lecture, three hours. Knowledge of Asian languages not required. Survey of some landmarks of classical Indian literature from second millennium B.C.E. into second millennium C.E., including both poetry and prose, "high" art and more popular genres, and secular and religious texts, examined in their social and institutional contexts. P/NP or letter grading.

155. Topics in South Asian Cinema and Literature. (4) Lecture, three hours. Knowledge of Hindi/Urdu not required. Critical analysis of language and culture in South Asian diaspora as represented in films and/or literature. P/NP or letter grading.

C160. Buddhism in India. (4) Lecture, three hours; discussion, one hour. Knowledge of Indian languages not required. Overview of social and doctrinal history of Buddhism from its origin to its disappearance in India, based not only on texts but on archaeological, art historical, and inscriptional sources. Examination of both formal doctrine and actual practices and on what learned Buddhists wrote and ordinary Buddhists did, saw, and made. Concurrently scheduled with course C260. Letter grading.

170. Variable Topics in South Asian Linguistics, Languages, and Cultures. (4) Lecture, three hours. Knowledge of Hindi/Urdu not required. Critical analysis of language and culture in South Asian linguistic area, exploring notions of India as linguistic area and as cultural area. P/NP or letter grading.

175. Introduction to Indic Philosophy. (4) Lecture, three hours. Survey of main trends in Indian philosophy from ancient to modern times. P/NP or letter grading.

185. Women and Gender in Ancient India. (4) Lecture, three hours. Knowledge of Asian languages not required. Examination of position and function of women in ancient India, primarily through study of key religious and legal texts. Topics include women's life cycle, relation to social institutions, and challenges to these ideals, especially in narrative literature. P/NP or letter grading.

Graduate Courses

M222A-M222B. Vedic. (4-4) (Same as Iranian M222A-M222B.) Lecture, three hours. Preparation: knowledge of Sanskrit equivalent to course 110C. Characteristics of Vedic dialect and readings in Rig-Vedic hymns. Only course M222B may be repeated for credit. S/U or letter grading.

230. Selected Readings in Sanskrit Texts. (4) Lecture, three hours. May be repeated for credit with consent of instructor. S/U or letter grading.

234A-234B. Introduction to Panini's Grammar. (4-4) Lecture, three hours. Requisite: course 110C. Reading of selected passages of text, with introduction to Panini's technique. S/U or letter grading.

236A-236B. Pali and Prakrits. (4-4) Lecture, three hours. Preparation: knowledge of Sanskrit equivalent to course 110B. Grammatical studies and reading of texts. Comparative considerations. S/U or letter grading. **236A.** Pali; **236B.** Prakrits.

243. Translation Workshop: Premodern Sanskrit, Pali, and/or Prakrit Texts. (2) Seminar, two hours. Requisite: course 110C. Translation, grammatical analysis, and discussion of selections from premodern Sanskrit, Pali, and/or Prakrit texts. S/U grading.

C260. Buddhism in India. (4) Lecture, three hours; discussion, one hour. Knowledge of Indian languages not required. Overview of social and doctrinal history

of Buddhism from its origin to its disappearance in India, based not only on texts but on archaeological, art historical, and inscriptional sources. Examination of both formal doctrine and actual practices and on what learned Buddhists wrote and ordinary Buddhists did, saw, and made. Concurrently scheduled with course C160. Letter grading.

Southeast Asian

Lower Division Courses

M20. Visible Language: Study of Writing. (5) (Same as Asian M20, Indo-European Studies M20, Near Eastern Languages M20, and Slavic M20.) Lecture, three hours; discussion, one hour. Consideration of concrete means of language representation in writing systems. Earliest representations of language known are those of Near East dating to end of 4th millennium B.C. While literate civilizations of Egypt, Indus Valley, China, and Mesoamerica left little evidence of corresponding earliest developments, their antiquity and, in case of China and Mesoamerica, their evident isolation mark these centers as loci of independent developments in writing. Basic characteristics of early scripts, assessment of modern alphabetic writing systems, and presentation of conceptual basis of semiotic language representation. Origins and development of early non-Western writing systems. How Greco-Roman alphabet arose in 1st millennium B.C. and how it compares to other modern writing systems. P/NP or letter grading.

60. Religious Traditions in Southeast Asia. (4) (Formerly numbered 30.) Lecture, three hours. Introduction to historical development and contemporary practice of religions in Southeast Asia. Examination of indigenous religious beliefs and major textually based religions introduced to region, including Hinduism, Buddhism, Islam, and Christianity. P/NP or letter grading.

90. Modern Literatures in Southeast Asia. (4) Lecture, three hours. Knowledge of Southeast Asian languages not required. Exploration of diversity of Southeast Asia in such areas as traditional culture, modernization, politics, and literature through modern literary texts. P/NP or letter grading.

Upper Division Courses

120. Field Methods in Asian Languages and Cultures. (3) Discussion, three hours. Recommended preparation: at least one year of one Asian language. Examination and application of methodologies to better understand language and culture acquisition by working directly with native speaker of Asian language. One language per term to be selected from languages spoken in Southeast Asia, South Asia, and East Asia. May be repeated for credit. P/NP or letter grading.

130. Topics in Southeast Asian Literature. (4) Lecture, three hours. Requisite: one course from Comparative Literature 1A, 1B, 1C, 1D, 2AW, 2BW, 2CW, or English Composition 3 or 3H. Knowledge of Southeast Asian languages not required. Advanced exploration of Southeast Asia through in-depth reading of texts from region. Topics include censorship, politics, language, and literature. P/NP or letter grading.

135. Religion and Society in Southeast Asia. (4) Lecture, three hours; discussion, one hour. Critical issues related to major religious traditions in Southeast Asia, with emphasis on reading and reflecting on recent scholarship regarding complex interactions between religion, state, and society in contemporary Southeast Asia. P/NP or letter grading.

157. Gender Issues in Southeast Asia. (4) Seminar, three hours. Critical examination of gender issues in one or more Southeast Asian countries as they connect to social historical contexts nationally, regionally, or globally. May be repeated for credit. P/NP or letter grading.

170A-170B-170C. Topics in Southeast Asian Studies. (4-4-4) Lecture, three hours. Exploration of Southeast Asian culture through in-depth reading of texts and/or visual documents. Topics include literature, religion, folklore, cultural history, and society. P/NP or letter grading.

197. Individual Studies in Southeast Asian. (4) Tutorial, to be arranged. Limited to juniors/seniors and graduate students who desire more advanced or specialized treatment of one language offered in program beyond introductory and intermediate courses currently offered. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required; see academic coordinator. P/NP or letter grading.

Thai

Lower Division Courses

1. Introductory Thai. (5) (Formerly numbered Southeast Asian 60A.) Lecture, five hours. Coverage of basic Thai grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

2. Introductory Thai. (5) (Formerly numbered Southeast Asian 60B.) Lecture, five hours. Enforced requisite: course 1 with grade of C or better. Coverage of basic Thai grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

3. Introductory Thai. (5) (Formerly numbered Southeast Asian 60C.) Lecture, five hours. Enforced requisite: course 2 with grade of C or better. Coverage of basic Thai grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

3R. Thai Scripts. (5) (Formerly numbered Southeast Asian 60R.) Lecture, five hours. Recommended preparation: speaking and listening skills in Thai and Thai placement test. Training in reading and writing at introductory level. Completion of course 3R is equivalent to completion of one year of college-level Thai. P/NP or letter grading.

4. Intermediate Thai. (5) (Formerly numbered Southeast Asian 61A.) Lecture, five hours. Enforced requisite: course 3 with grade of C or better. Reinforcement of basic Thai grammar and coverage of more advanced topics. Broadening of skills in conversation and composition; reading of selected texts. P/NP or letter grading.

5. Intermediate Thai. (5) (Formerly numbered Southeast Asian 61B.) Lecture, five hours. Enforced requisite: course 4 with grade of C or better. Reinforcement of basic Thai grammar and coverage of more advanced topics. Broadening of skills in conversation and composition; reading of selected texts. P/NP or letter grading.

6. Intermediate Thai. (5) (Formerly numbered Southeast Asian 61C.) Lecture, five hours. Enforced requisite: course 5 with grade of C or better. Reinforcement of basic Thai grammar and coverage of more advanced topics. Broadening of skills in conversation and composition; reading of selected texts. P/NP or letter grading.

Upper Division Courses

100A-100B-100C. Advanced Thai. (4-4-4) (Formerly numbered Southeast Asian 162A-162B-162C.) Lecture, three hours. Requisite: course 6 with grade of C or better. Course 100A with grade of C or better is requisite to 100B; course 100B with grade of C or better is requisite to 100C. Reinforcement of basic grammar and vocabulary acquired at beginning and intermediate levels. Coverage of more advanced topics on various aspects of Thai society. Broadening of skills in conversation and composition. Reading of selected texts and authentic materials. P/NP or letter grading.

109. Advanced Tutorial Instruction in Thai. (2) Tutorial, two hours. Prerequisite: course 6 or Thai placement test. Tutorial and guided independent study to help students develop advanced to superior proficiency in oral and written Thai. May be repeated for credit. P/NP or letter grading.

Vietnamese

Lower Division Courses

1. Introductory Vietnamese. (5) (Formerly numbered Southeast Asian 50A.) Lecture, five hours. Coverage of basic Vietnamese grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

1A. Introductory Vietnamese for Heritage Learners. (5) (Formerly numbered Southeast Asian 50D.) Lecture, five hours. Not open to students who have learned, from whatever source, enough Vietnamese to qualify for more advanced courses. Designed for Vietnamese-heritage learners who have some limited knowledge of Vietnamese or have had no formal instruction in Vietnamese. Emphasis on spelling, basic grammar, reading, writing, daily conversation, and polite forms. P/NP or letter grading.

2. Introductory Vietnamese. (5) (Formerly numbered Southeast Asian 50B.) Lecture, five hours. Enforced prerequisite: course 1 with grade of C or better. Coverage of basic Vietnamese grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

2A. Introductory Vietnamese for Heritage Learners. (5) (Formerly numbered Southeast Asian 50E.) Lecture, five hours. Enforced prerequisite: course 1A with grade of C or better or Vietnamese placement test. Not open to students who have learned, from whatever source, enough Vietnamese to qualify for more advanced courses. Designed for Vietnamese-heritage learners who have some limited knowledge of Vietnamese or have had no formal instruction in Vietnamese. Emphasis on spelling, basic grammar, reading, writing, daily conversation, and polite forms. P/NP or letter grading.

3. Introductory Vietnamese. (5) (Formerly numbered Southeast Asian 50C.) Lecture, five hours. Enforced prerequisite: course 2 with grade of C or better. Coverage of basic Vietnamese grammar, with equal emphasis on reading, writing, conversation, and comprehension. P/NP or letter grading.

3A. Introductory Vietnamese for Heritage Learners. (5) (Formerly numbered Southeast Asian 50F.) Lecture, five hours. Enforced prerequisite: course 2A with grade of C or better or Vietnamese placement test. Not open to students who have learned, from whatever source, enough Vietnamese to qualify for more advanced courses. Designed for Vietnamese-heritage learners who have some limited knowledge of Vietnamese or have had no formal instruction in Vietnamese. Emphasis on spelling, basic grammar, reading, writing, daily conversation, and polite forms. P/NP or letter grading.

4. Intermediate Vietnamese. (5) (Formerly numbered Southeast Asian 51A.) Lecture, five hours. Enforced prerequisite: course 3 with grade of C or better. Reinforcement of basic Vietnamese grammar and coverage of more advanced topics. Broadening of skills in conversation and composition; reading of selected texts. P/NP or letter grading.

5. Intermediate Vietnamese. (5) (Formerly numbered Southeast Asian 51B.) Lecture, five hours. Enforced prerequisite: course 4 with grade of C or better. Reinforcement of basic Vietnamese grammar and coverage of more advanced topics. Broadening of skills in conversation and composition; reading of selected texts. P/NP or letter grading.

6. Intermediate Vietnamese. (5) (Formerly numbered Southeast Asian 51C.) Lecture, five hours. Enforced prerequisite: course 5 with grade of C or better. Reinforcement of basic Vietnamese grammar and

coverage of more advanced topics. Broadening of skills in conversation and composition; reading of selected texts. P/NP or letter grading.

8. Elementary Vietnamese: Intensive. (15) Lecture, 10 hours; discussion, 10 hours. Intensive course equivalent to courses 1, 2, and 3. Coverage of basic Vietnamese grammar, with equal emphasis on reading, writing, conversation, and comprehension. Offered in summer only. P/NP or letter grading.

Upper Division Courses

100A-100B-100C. Advanced Vietnamese. (4-4-4) (Formerly numbered Southeast Asian 152A-152B-152C.) Lecture, three hours. Enforced prerequisite: course 6 with grade of C or better or Vietnamese placement test. Designed to strengthen and build on language skills previously acquired at beginning and intermediate levels. Content-based readings and discussion, with various aspects of Vietnam, particularly its culture. Readings include both authentic original works and simplified texts. Each course may be taken independently for credit. P/NP or letter grading.

109. Advanced Tutorial Instruction in Vietnamese. (2) Tutorial, two hours. Prerequisite: course 6 or Vietnamese placement test. Tutorial and guided independent study to help students develop advanced to superior proficiency in oral and written Vietnamese. May be repeated for credit. P/NP or letter grading.

M155. Topics in Vietnamese Cinema and/or Literature. (4) (Formerly numbered Southeast Asian M155.) (Same as Asian American Studies M173.) Lecture, three hours; discussion, one hour. Knowledge of Vietnamese not required. Critical and historical examination of literary and/or filmic representations connected to social practices such as empire, nation, diaspora, and globalization. Original language course materials available for interested students. P/NP or letter grading.

155FL. Readings in Vietnamese. (2) (Formerly numbered Southeast Asian 155FL.) Seminar, two hours. Prerequisite: course 3 or 3A. Enforced corequisite: course M155. Additional work in Vietnamese to augment work assigned in course M155, including reading, writing, and other exercises in Vietnamese. P/NP or letter grading.

180A. Vietnam: History and Civilization to 1858. (4) (Formerly numbered Southeast Asian 156A.) Lecture, three hours; discussion, one hour. Recommended preparation: at least one Asian history course. Exploration of Vietnamese society and culture from origins to early 19th century, with emphasis on examination of ways in which interactions between indigenous and Chinese/Southeast Asian political and cultural forces helped shape religious, literary, and social traditions. P/NP or letter grading.

180B. Vietnam: History and Civilization, 1858 to Present. (4) (Formerly numbered Southeast Asian 156B.) Lecture, three hours; discussion, one hour. Recommended preparation: at least one Asian history or civilization course. Exploration of Vietnamese history and civilization during colonial and postcolonial eras, with emphasis on profound changes that swept through Vietnamese society during period of extended political and military conflict. P/NP or letter grading.

Graduate Course

297B. Topics in Contemporary Vietnamese Culture. (4) Seminar, three hours. Selected topics in Vietnamese contemporary culture, including diasporic culture, with emphasis on cultural production. Primary materials combined with theoretical readings. S/U or letter grading.

ASTRONOMY

See Physics and Astronomy

ATMOSPHERIC AND OCEANIC SCIENCES

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Suzanne E. Paulson, Ph.D., *Vice Chair*

Professors

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Kuo-Nan Liou, Ph.D.
Lawrence R. Lyons, Ph.D.
James C. McWilliams, Ph.D. (*Louis B. Slichter Professor of Geophysics and Planetary Physics*)
Carlos R. Mechoso, Ph.D.
J. David Neelin, Ph.D.
Suzanne E. Paulson, Ph.D.
Bjorn B. Stevens, Ph.D.
Jochen P. Stutz, Ph.D.
Richard M. Thorne, Ph.D.
Richard P. Turco, Ph.D.
Yongkang Xue, Ph.D.

Professors Emeriti

Akio Arakawa, D.Sc.
James G. Edinger, Ph.D.
Michael Ghil, Ph.D.
George L. Siscoe, Ph.D.
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Associate Professor

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Assistant Professors

Burkard G. Baschek, Ph.D.
Kristen L. Corbosiero, Ph.D.
Curtis A. Deutsch, Ph.D.
Qinbin Li, Ph.D.
Jonathan L. Mitchell, Ph.D.
Ulrike Seibt, Ph.D.
Aradhna K. Tripathi, Ph.D.

Lecturer

Jeffrey K. Lew, Ph.D.

Adjunct Professors

Yi Chao, Ph.D.
Randall R. Friedl, Ph.D.
Duane E. Waliser, Ph.D.

Adjunct Assistant Professor

Annmari Ederling, Ph.D.

Scope and Objectives

The atmospheric and oceanic sciences present a wide variety of problems of compelling scientific interest and increasing social concern. This is exemplified by efforts to improve air quality, depredations caused by severe storms and floods, attempts to control or modify weather phenomena, problems of long-range weather forecasts, climate change, and predictions, and expanding scientific frontiers into our outer atmosphere and atmospheres of other planets.

The department offers a broad curriculum in dynamic and synoptic meteorology, atmospheric physics and chemistry, and upper atmosphere and space physics.

The Bachelor of Science degree qualifies students for entry-level technical positions or represents valuable background for training in other professions. Master of Science and Ph.D. degree holders work in universities, research centers, laboratories, and government services and, increasingly, in the rapidly burgeoning private sector.

Undergraduate Study

Atmospheric, Oceanic, and Environmental Sciences B.S.

Preparation for the Major

Required: Two courses from Atmospheric and Oceanic Sciences 1/1L, 2/2L, 3/3L; Chemistry and Biochemistry 14A and 14B, or 20A and 20B; Mathematics 3A, 3B, and 3C, or 31A, 31B, 32A, 32B, 33A, and 33B; Physics 1A or 1AH, 1B or 1BH, 1C or 1CH, 4AL, and 4BL, or 6A, 6B, and 6C; Program in Computing 10A.

Students interested in pursuing graduate studies in atmospheric and oceanic sciences or obtaining employment with the National Weather Service or other government agencies are strongly urged to select the Mathematics 31A through 33B sequence and the Physics 1 sequence.

Transfer Students

Transfer applicants to the Atmospheric, Oceanic, and Environmental Sciences major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: one year of calculus, one year of calculus-based physics with laboratory, one general chemistry course with laboratory for majors, and one C++ programming course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Four courses from Atmospheric and Oceanic Sciences 101, 102, 103, 104, M105, three additional upper division atmospheric sciences courses selected in consultation with the undergraduate advisers, and two upper division courses from a list of chemistry, mathematics, physics, and statistics courses selected in consultation with the undergraduate advisers.

Students preparing for graduate studies in atmospheric chemistry should take Chemistry and Biochemistry 20B, 103, Mathematics 115A, 136, Physics 131, 132; students preparing for graduate studies in upper atmosphere and space physics should take Mathematics 115A, Physics 110A, 110B, M122; students preparing for graduate studies in atmospheric dynamics and physics should take Atmospheric and Oceanic Sciences 101, M120, 125, Mathematics 115A, 136, Physics 131, 132.

Atmospheric and Oceanic Sciences Minor

The Atmospheric and Oceanic Sciences minor provides a formal vehicle for students specializing in other science fields to pursue interests in the atmospheric and oceanic environment. It is designed to be flexible, recognizing that many topics in this field cross traditional disciplinary boundaries.

To enter the minor, students must have an overall grade-point average of 2.0 or better and must make an appointment with a departmental undergraduate adviser for approval in selecting a coordinated program of courses from within the department and related disciplines. For further information, contact the department at (310) 825-1217.

Required Courses (28 units): Seven 4-unit courses, including (1) three from Atmospheric and Oceanic Sciences 101, 102, 103, 104, C110, C115, M120, 125, 130, M140, 145, C160, C170, 180, CM185 and (2) four additional courses, two of which must be upper division, from any of the above atmospheric and oceanic sciences courses beyond the minimum three required or from Atmospheric and Oceanic Sciences 1, 2, 3, 186 (must be taken twice), Chemistry and Biochemistry 103, 110A, 110B, 113A, C113B, 114, Earth and Space Sciences 15, Ecology and Evolutionary Biology 109, C119, 122, 123, 147, 148, Mathematics 115A, 115B, 132, 135, 136, 146, 170A, 170B, Physics 110A, 110B, 112, M122, 131, 132, Statistics 110A, 110B. Other relevant courses from related disciplines may be substituted with prior approval of the department.

Groups of courses relevant to specific subareas of atmospheric sciences include (1) *atmospheric chemistry:* Atmospheric and Oceanic Sciences 104, M140, Chemistry and Biochemistry 103, 110A, 110B, C113B, 114; (2) *atmospheric chemistry and biology:* Atmospheric and Oceanic Sciences 101, 104, Ecology and Evolutionary Biology 109, C119, 122; (3) *atmospheric dynamics:* Atmospheric and Oceanic Sciences 101, 102, 125, Physics 112, 131, 132; (4) *atmospheric dynamics and mathematical modeling:* Atmospheric and Oceanic Sciences 101, 125, 180, Mathematics 115A, 115B, 132, 135, 136, 142, 146; (5) *oceanography and biology:* Atmospheric and Oceanic Sciences 101, 103, 104, Ecology and Evolutionary Biology 109, 123, 147, 148; (6) *upper atmosphere:* Atmospheric and Oceanic Sciences 101, M120, 125, C170, Physics 110A, 110B, M122.

One course may be taken on a Passed/Not Passed basis; each of the other minor courses must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate

Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Atmospheric and Oceanic Sciences offers Master of Science (M.S.), Candidate in Philosophy (C.Phil.), and Doctor of Philosophy (Ph.D.) degrees in Atmospheric and Oceanic Sciences.

Atmospheric and Oceanic Sciences

Lower Division Courses

1. Climate Change: From Puzzles to Policy. (4)

Lecture, three hours; discussion, one hour. Overview of fundamentals of Earth's climate, including greenhouse effect, water and chemical cycles, outstanding features of atmospheric and ocean circulation, and feedback between different system components. Exciting and contentious scientific puzzles of climate system, including causes of ice ages, greenhouse warming, and el niño. Importance of climate science and prediction to society, with emphasis on science's role in identifying, qualifying, and solving environmental problems such as ozone hole and greenhouse warming. P/NP or letter grading.

1L. Climate Change: From Puzzles to Policy—Laboratory. (1) Laboratory, one hour. Enforced corequisite: course 1. Investigations and demonstrations supporting material in course 1, including greenhouse effect, atmosphere and ocean circulation, past, present, and future climates, and role of science in climate change politics. P/NP or letter grading.

2. Air Pollution. (4) Lecture, three hours; discussion, one hour. Causes and effects of high concentrations of pollution in atmosphere. Topics include nature and sources of gaseous and particulate pollutants, their transport, dispersion, modification, and removal, with emphasis on atmospheric processes on scales ranging from individual sources to global effects; interaction with biosphere and oceans; stratospheric pollution. P/NP or letter grading.

2L. Air Pollution Laboratory. (1) Laboratory, one hour. Enforced corequisite: course 2. Investigations and demonstrations supporting material in course 2, including box model simulation, dose responses, air parcel motion and pollution dispersion, daily and seasonal variation of smog pollutants, and smog transport. P/NP or letter grading.

3. Introduction to Atmospheric Environment. (4)

Lecture, three hours; discussion, one hour. Nature and causes of weather phenomena, including atmospheric circulation, clouds and storms, lightning and precipitation, fronts and cyclones, and tornadoes and hurricanes. Atmospheric radiation, global warming, and greenhouse effect. P/NP or letter grading.

3L. Introduction to Atmospheric Environment Laboratory. (1)

Laboratory, one hour. Enforced corequisite: course 3. Investigations and demonstrations supporting material in course 3, including causes and effects of seasons, remote sensing and satellite picture interpretation, atmospheric stability, and weather systems (fronts and cyclones). P/NP or letter grading.

5. Climates of Other Worlds. (4) Lecture, three hours; discussion, one hour. Introduction to atmospheres of planets and their satellites in solar system using information obtained during recent planetary exploration program. Elementary description of origin and evolution of atmospheres on planets. Climates on planets, conditions necessary for evolution of life, and its resulting effect on planetary environment. P/NP or letter grading.

M10. Introduction to Environmental Science. (4) (Same as Environment M10.) Lecture, three hours; laboratory, one hour. Limited to undergraduate students. Introduction to environmental science as discipline and as way of thinking. Discussion of critical environmental issues at local and global scales. Fundamentals of physical, chemical, and biological processes important to environmental science. Laboratory exercises to augment lectures. Letter grading.

88. Lower Division Seminar. (4) Seminar, three hours. Variable topics; consult *Schedule of Classes* or department for topics to be offered in specific term. P/NP or letter grading.

Upper Division Courses

M100. Earth and Its Environment. (4) (Same as Environment M111.) Lecture, three hours. Overview of Earth as system of distinct, yet intimately related, physical and biological elements. Origins and characteristics of atmosphere, oceans, and land masses. Survey of history of Earth and of life on Earth, particularly in relation to evolution of physical world. Consideration of possibility of technological solutions to global environmental problems using knowledge gained during course. Letter grading.

101. Fundamentals of Atmospheric Dynamics and Thermodynamics. (5) Lecture, four hours; discussion, one hour. Requisites: Mathematics 3B or 31B, Physics 1B or 6B. Recommended: course 3. Introduction to atmospheric environment, with emphasis on thermodynamics, dynamics, and structure of atmosphere. Laws of thermodynamics; work, heat, and cyclic processes. Adiabatic processes, moisture, and atmospheric stability. Hydrostatic balance. Fundamental equations of motion, with applications to atmospheric flow. Circulation and vorticity. Letter grading.

102. Climate Change and Climate Modeling. (4) Lecture, three hours; discussion, one hour. Enforced requisites: Mathematics 3C or 32A, Physics 1B or 6C, with grades of C or better. Global environmental issues in climate change due to human activities or natural climate variations. Quantitative introduction to new science of climate modeling to understand and predict these changes. Physical processes in climate system. Atmospheric and oceanic circulation. El Niño and year-to-year climate prediction. Greenhouse effect and global warming. P/NP or letter grading.

103. Physical Oceanography. (4) Lecture, three hours; discussion, one hour. Requisite: Mathematics 3B or 31B. Introductory course for physical sciences, life sciences, or engineering majors interested in environmental issues. Observations of temperature, salinity, density, and currents. Methods. Wind-driven and geostrophic currents. California Current and Gulf Stream. Internal waves. Surface waves and tides. Air/sea interactions. Coastal upwelling. Biological/physical interactions. El Niño. Role of ocean in climate and global change. Santa Monica Bay field trip. Letter grading.

104. Fundamentals of Air and Water Pollution. (4) Lecture, three hours; discussion, one hour. Requisite: Chemistry 14B or 20B. Chemistry and physics of air and water pollution, including photochemistry, acid rain, air pollution meteorology and dispersion, groundwater and surface water pollution, chemical cycling, air/water interface, global atmospheric change. Letter grading.

M105. Introduction to Chemical Oceanography. (4) (Same as Ecology and Evolutionary Biology M139.) Lecture, three hours. Introductory course for physical sciences, life sciences, and engineering majors interested in oceanic environment. Chemical composition of oceans and nature of physical, chemical, and biological processes governing this composition in past and present. Cycles of major and minor oceanic constituents, with focus on those that are most important for life (i.e., carbon, nitrogen, phosphorus, silicon, and oxygen). Investigation of primary production, export production, remineralization, diagenesis, air-sea gas exchange processes. Letter grading.

M106. Applied Climatology: Principles of Climate Impact on Natural Environment. (4) (Same as Geography M106.) Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Exploration of knowledge and tools to solve complex problems in contemporary applied climatology, including current practices, influence of climate on environment, and human influence on changing climates. P/NP or letter grading.

C110. Advanced Dynamic and Synoptic Meteorology. (6) Laboratory, six hours. Requisite: course 101. Weather map analysis, thermodynamic diagrams, satellite interpretation, severe weather forecasting, isentropic analysis, frontogenesis, quasi-geostrophic omega equation. Concurrently scheduled with course C227. P/NP or letter grading.

C115. Mesometeorology. (4) Lecture, three hours. Requisite: course 101. Observations of phenomena with length scales ranging from 20 km to 2,000 km. Topics include polar lows, airmass thunderstorms, multicell storms, supercell tornadoes, gust fronts, downbursts, microbursts, and dry line. Discussions on design of field project. Concurrently scheduled with course C228. P/NP or letter grading.

M120. Introduction to Fluid Dynamics. (4) (Formerly numbered CM120.) (Same as Earth and Space Sciences M140.) Lecture, three hours; discussion, one hour. Corequisite: Physics 131. Fluid statics and thermodynamics. Kinematics. Conservation laws and equations of fluid motion. Circulation theorems and vorticity dynamics. Rotating frame. Irrotational flow. Letter grading.

125. Geophysical Fluid Dynamics I. (4) (Formerly numbered C125.) Lecture, three hours. Fundamental equations of motion. Atmospheric and oceanic approximations. Rotating reference frame. Density stratification. Geostrophic adjustment and balance. Potential vorticity conservation. Vortex dynamics. Acoustic, gravity, inertial, Rossby, and Kelvin waves. Barotropic and baroclinic instability. Ekman boundary layers. Oceanic wind gyres: Sverdrup balance and western boundary currents. Letter grading.

130. California's Ocean. (4) Lecture, four hours. Requisite: course 103 or M105. Circulation, biogeochemistry, biota, water quality, measurement techniques, computational modeling, conservation, and management for California's coastal ocean, including coastal measurement cruise and term project (paper and presentation). Letter grading.

M140. Environmental Chemistry Laboratory. (4) (Same as Chemistry M104.) Lecture, two hours; laboratory, three hours. Requisite: Chemistry 20B. Laboratory experience for students who wish to pursue career in environmental science. Essential laboratory procedures to be performed in context of timely environmental issues involving smog formation, acid rain, and ozone depletion. Hands-on experience using scientific instruments and analytical techniques appropriate for environmental assessment. P/NP or letter grading.

145. Atmospheric Physics: Radiation, Clouds, and Aerosols. (4) Lecture, three hours; discussion, one hour. Requisites: Physics 1A, 1B, and 1C, or 6A, 6B, and 6C. Theory and application of atmospheric radiation, aerosol, and cloud processes. Topics include radiative transport, cloud and rain formation, aerosol properties, impact of aerosol and clouds on climate. Letter grading.

150. Atmospheric and Oceanic Sciences Laboratory. (5) Lecture, one hour; laboratory, six hours. Requisites: Mathematics 3B or 31B, Physics 1B and 1C (or 6B and 6C). Many of today's environmental problems, such as stratospheric ozone hole, current rise of greenhouse gas concentrations, and various severe weather phenomena, were first discovered and investigated using accurate observational techniques. Direct experimental observations remain crucial component in today's efforts to better understand weather, climate, and pollution of atmosphere and ocean. Introduction to experimental/observational approach in atmospheric and oceanic sciences. Students work in small groups to gain hands-on experience in setup, performance, analysis, and reporting of

different experiments. Introduction to underlying principles of these experimental methods and basic data analysis tools. P/NP or letter grading.

C160. Remote Sensing. (4) Lecture, three hours. Requisite: Physics 1C or 6B. Theory and techniques of remote sensing; atmospheric spectroscopy; methods based on scattering, absorption, and extinction; passive and active techniques; inversion methods; remote sensing of terrestrial meteorological parameters and trace constituents; remote sensing of surfaces and biosphere; remote sensing of planetary atmospheres. Concurrently scheduled with course C240B. P/NP or letter grading.

C170. Introduction to Solar System Plasmas. (4) Lecture, three hours; discussion, one hour. Requisites: Mathematics 33A, Physics 1C. Introduction to basic plasma physical processes occurring in sun, solar wind, magnetospheres, and ionospheres of planets, using simple fluid (magnetohydrodynamic) models as well as individual particle (radiation belt dynamics) approach. Solar-planetary coupling processes, geomagnetic phenomena, aurora. Concurrently scheduled with course C205A. Letter grading.

180. Numerical Methods in Atmospheric Sciences. (4) Lecture, three hours; discussion, one hour. Preparation: one course in C or Fortran programming. Requisite: Mathematics 33B. Survey of numerical methods employed in atmospheric and related sciences: theory, application, and programming. Letter grading.

CM185. Statistical Methods for Physical Sciences. (4) (Same as Statistics CM185.) Lecture, three hours. Designed for junior/senior departmental majors. Statistical framework for data analysis in fields of atmospheric sciences, astronomy, geology, and chemistry, depending on class composition. Presentation of popular techniques in all fields, with emphasis on applications and data, not theory, although some understanding of the theory is needed. Concurrently scheduled with course CM213. P/NP or letter grading.

186. Operational Meteorology. (2) (Formerly numbered 190.) Laboratory, six hours. Requisite: course C110. Limited to junior/senior Atmospheric, Oceanic, and Environmental Sciences majors. Daily contact with weather data and forecasting, satellite and radar data. Introduction to weather forecasting for aviation, air pollution, marine weather, fire weather, and public use. Includes daily weather map discussions and visits to observing, radiosonde, and radar installations. Letter grading.

197. Individual Studies in Atmospheric and Oceanic Sciences. (2 to 4) Tutorial, to be arranged. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

199. Directed Research in Atmospheric and Oceanic Sciences. (2 to 4) Tutorial, to be arranged. Limited to juniors/seniors and required for Mathematics/Atmospheric and Oceanic Sciences majors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200A. Introduction to Atmospheric and Oceanic Fluid. (4) (Formerly numbered C200A.) Lecture, three hours; discussion, one hour. Corequisite: Physics 131. Thermodynamics of two component (moist/salty) fluids. Thermodynamic diagrams and stability. Saturation and moist processes. Hydrostatics. Equations of fluid motion in rotating coordinate systems. Scales of motion and dominant balances: geostrophic, gradient, and thermal wind. Circulation and vorticity. Boundary layers and turbulence. Elementary waves. Letter grading.

200B. Introduction to Dynamics of Earth System.

(4) Lecture, three hours. Overview of general circulation of atmosphere and ocean; global energy balances; coupled circulations (such as el niño); mesoscale, synoptic, and tropical phenomena; boundary layers, clouds, and convection; biogeochemical cycles; climate variability and change. Letter grading.

201A. Geophysical Fluid Dynamics I. (4) (Formerly numbered C201A.) Lecture, three hours. Fundamental equations of motion. Atmospheric and oceanic approximations. Rotating reference frame. Density stratification. Geostrophic adjustment and balance. Potential vorticity conservation. Vortex dynamics. Acoustic, gravity, inertial, Rossby, and Kelvin waves. Barotropic and baroclinic instability. Ekman boundary layers. Oceanic wind gyres: Sverdrup balance and western boundary currents. Letter grading.

201B. Geophysical Fluid Dynamics II. (4) Lecture, three hours. Requisite: course 125 or 201A. Anelastic approximation. Small-scale gravity waves in atmosphere. Critical levels. Kelvin/Helmholtz instability. Quasi-static oscillations of planetary atmosphere. Equatorial Kelvin and mixed Rossby-gravity (Yanai) waves. Baroclinic and barotropic instabilities in continuously stratified system. General circulation of atmosphere. Jet streams, eddies, storm tracks. Propagation of planetary waves. Wave-mean flow interactions. Noninteraction theorems. Letter grading.

201C. Atmospheric and Oceanic Turbulence.

(4) Lecture, three hours. Requisite: course 200A. Recommended: course 201A. Turbulent flows that occur on relatively small scales (<~10 km) in both atmosphere and ocean. Classical homogeneous, shear, convective, and boundary-layer turbulence and its geophysical modification due to stratification, Earth's rotation, and water phase changes. S/U or letter grading.

202. Introduction to Ocean Science. (4) Lecture, three hours. Fundamentals of ocean physics, chemistry, and biology. Equations of motion, dynamical balances, conservation laws. Ocean circulation and material transport from small-scale eddies and waves to global circulation of thermocline and deep ocean; influences on ecosystem processes, biogeographic provinces, and chemical cycles; implications for global heat transport, sea ice, and climate. S/U or letter grading.

M203A. Introduction to Atmospheric Chemistry.

(4) (Same as Civil Engineering M262A.) Lecture, three hours. Requisite for undergraduates: Chemistry 20B. Principles of chemical kinetics, thermochemistry, spectroscopy, and photochemistry; chemical composition and history of Earth's atmosphere; biogeochemical cycles of key atmospheric constituents; basic photochemistry of troposphere and stratosphere, upper atmosphere chemical processes; air pollution; chemistry and climate. S/U or letter grading.

203B. Introduction to Atmospheric Physics.

(4) Lecture, three hours; discussion, one hour. Principles of radiative transfer; absorption, emission, and scattering of solar and infrared radiation; radiation budget consideration; aerosols in atmosphere; principles of water droplet and ice crystal formation; diffusion and accretion; precipitation processes; radiative forcings of clouds/aerosols and climate feedback. Letter grading.

C205A. Introduction to Solar System Plasmas.

(4) Lecture, three hours; discussion, one hour. Introduction to basic plasma physical processes occurring in sun, solar wind, magnetospheres, and ionospheres of planets, using simple fluid (magnetohydrodynamic) models as well as individual particle (radiation belt dynamics) approach. Solar-planetary coupling processes, geomagnetic phenomena, aurora. Concurrently scheduled with course C170. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

205B. Introduction to Solar-Terrestrial Physics.

(4) Lecture, three hours; discussion, one hour. Solar, interplanetary, magnetospheric, ionospheric, auroral, geomagnetic phenomenological and theoretical background for studies in space physics. Contextual understanding and literacy in space physics terminology

provided. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

205C. Planetary Upper Atmospheres. (4) Lecture, three hours; discussion, one hour. Aeronomy of upper atmospheres of Earth and other planets and some of their satellites—thermospheric structure and morphology, circulations, and disturbances; ionospheres as collisional and magnetized (unmagnetized) plasmas: currents, drifts, and instabilities. Examples of upper atmospheric interaction with lower atmosphere and magnetosphere. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

M206. Introduction to Biophysical Modeling of Land Surface Processes and Land/Atmosphere Interactions.

(4) (Same as Geography M206.) Lecture, two hours; laboratory, one hour; reading period, one hour. Designed for graduate students. Presentation of introductory knowledge for graduate students to understand nature, principles, and scope of biophysical modeling of land surface processes, including ideal canopy model, radiation, heat and CO₂ fluxes transfer, and satellite data application. Laboratory sessions included. S/U or letter grading.

Dynamic and Synoptic Meteorology**210. Dynamics of Planetary Circulations.**

(4) Lecture, three hours. Requisite: course 201A. Mean atmospheric circulation and its low-frequency variability. Persistent anomalies and multiple flow regimes. Vacillation in laboratory models of atmospheric flows and intraseasonal oscillations. Wind-driven ocean circulation and its interannual variability. Hierarchical modeling of atmospheric and oceanic flows. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

211. Planetary Wave Dynamics and Teleconnections in Atmosphere/Ocean.

(4) Lecture, three hours. Requisite: course 201B. Dynamics of stationary and low-frequency waves in Earth's atmosphere and ocean with applications to remote impacts of climate variability. Propagation of barotropic and baroclinic Rossby waves in spatially varying flow. Interactions with storm tracks and mean flow. Teleconnection patterns. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

212A. Numerical Methods in Geophysical Fluid Dynamics.

(4) Lecture, three hours. Requisite or corequisite: course 201A. Basic numerical methods for initial-boundary value problems in fluid dynamics, with emphasis on applications to atmospheric and oceanographic problems. Finite-difference methods and truncation error. Linear and nonlinear computational instability. Computational modes and computational boundary conditions. Nonlinear shallow-water equation model. Spectral methods. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

212B. Numerical Modeling of Atmosphere I.

(4) Lecture, three hours. Requisites: courses 201B, 212A. Dynamics of numerical weather prediction and climate models and their computational design. Basic governing equations. Vertical and horizontal coordinates. Quasi-geostrophic and balanced models. Shallow-water equation model. Three-dimensional primitive equation models. Limited-area modeling. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

212C. Numerical Modeling of Atmosphere II.

(4) Lecture, three hours. Requisite: course 201C. Formulation of physical processes in numerical weather prediction and climate models. Planetary boundary layer processes. Turbulence closure models. Condensation processes. Parameterization of moist-convective processes. Cloudiness parameterization. Parameterization of gravity wave drag. S/U grading.

CM213. Statistical Methods for Physical Sciences.

(4) (Same as Statistics CM252.) Lecture, three hours. Designed for graduate astronomy, atmospheric sciences, chemistry, and geology students. Statistical framework for data analysis in fields of atmospheric sciences, astronomy, geology, and chemistry, depending on class composition. Presentation of popular techniques in all fields, with emphasis on applications and data, not theory, although some understanding of theory is needed. Concurrently scheduled with course CM185. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

214. Theoretical Climatic Dynamics.

(4) Lecture, three hours. Radiative transfer and energy-balance models (EBMs). Multiple equilibrium climates and their stability. Coupled EBMs of atmosphere and oceans. Climatic history of our planet. Continuum mechanics of ice sheets and mantle. Oscillatory models of Quaternary glaciation cycles. Transitions from equilibrium to periodic and aperiodic climate behavior. Climatic predictability. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

215. Ocean Circulation.

(4) Lecture, three hours. Requisites: courses 200A, 201A. Phenomena, theory, and modeling of ocean circulations with global to regional scope. Circulation types include thermohaline and wind-driven currents. Examination of relationships between ocean circulations and smaller-scale motions, atmospheric climate, and biogeochemical transport. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

216A. Tropical Motions with Moist Processes.

(4) Lecture, three hours. Requisite: course 201C. Cumulus convection and the boundary layer in tropics. Cloud clusters and mesoscale convection systems. Interaction of cumulus convection with large-scale environment. Tropical cyclones. Monsoon meteorology. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

216B. Wave Motions in Tropical Atmosphere.

(4) Lecture, three hours. Requisite: course 201B. Basic theory of equatorially trapped waves. Observations of tropical wave disturbances. Generation mechanisms of tropical waves. Tropical 30-50 day oscillation. Quasi-biennial and semiannual oscillations. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

217. Mesoclimates.

(4) Lecture, three hours. Global distribution of climate regimes with spatial scales smaller than 100 km. Mechanisms maintaining mesoclimates against much larger-scale atmospheric general circulation and isolation gradients. Mesoclimate-ecosystem interaction. S/U or letter grading.

218. Dynamics of Atmosphere/Ocean System.

(4) Lecture, three hours. Transfer of properties between atmosphere and ocean; wind-driven ocean currents; coastal upwelling. Air/sea interactions. Effects of oceans on climate. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

220. Dynamics of Middle Atmosphere.

(4) Lecture, three hours. Requisite: course 201A. Structure and composition of middle atmosphere. Waves in middle atmosphere, including tides, planetary waves, and

gravity waves. Quasi-biennial oscillations. Stratospheric sudden warmings. Semiannual oscillations. Wave-mean flow interactions. Interactions between middle and lower atmosphere. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

221. Geophysical Turbulence. (4) Lecture, three hours. Requisites: courses 200A, 201A. Phenomena, theory, and modeling of turbulence in Earth's oceans and atmosphere—from fine structure to planetary scale motions. Regimes of turbulence include homogeneous flows in two and three dimensions, shear flows, convection, stably stratified flows, and geostrophic motions. Examination of relationships between turbulence and its transport effects on general circulations. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

224A. Atmospheric Turbulence. (4) Lecture, three hours. Kinematics of homogeneous and shear flow turbulence. Surface and planetary boundary layers, including heat transfer and turbulent convection. Survey of field and laboratory observations and their interpretation by theory. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

M224B. Atmospheric Diffusion and Air Pollution. (4) (Same as Civil Engineering M262B.) Lecture, three hours. Nature and sources of atmospheric pollution; diffusion from point, line, and area sources; pollution dispersion in urban complexes; meteorological factors and air pollution potential; meteorological aspects of air pollution. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

C227. Advanced Dynamic and Synoptic Meteorology. (6) Laboratory, six hours. Requisite: course 101. Weather map analysis, thermodynamic diagrams, satellite interpretation, severe weather forecasting, isentropic analysis, frontogenesis, quasi-geostrophic omega equation. Concurrently scheduled with course C110. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

C228. Mesometeorology. (4) Lecture, three hours. Requisite: course 101. Observations of phenomena with length scales ranging from 20 km to 2,000 km. Topics include polar lows, airmass thunderstorms, multicell storms, supercell tornadoes, gust fronts, downbursts, microbursts, and dry line. Discussions on design of field project. Concurrently scheduled with course C115. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

229. Mesoscale Modeling. (4) Lecture, three hours. Requisites: courses 201C, C228. Numerical and analytical modeling of convective and mesoscale motions, from shallow heat sources to large complex systems. Model frameworks, assumptions, parameterizations, and solution techniques. Role of modeling efforts in understanding dynamic structure and behavior of systems. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

Atmospheric Physics and Chemistry

230A. Atmospheric Chemistry I. (4) Lecture, three hours. Requisite: course M203A. Photochemistry of troposphere; physical chemistry of surfaces and solutions; precipitation chemistry and acid rain; atmospheric organic chemistry; regional and global biogeochemical cycles; current issues in global change. S/U (for majors with consent of instructor after suc-

cessful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

230B. Atmospheric Chemistry II. (4) Lecture, three hours. Requisite: course M203A. Photochemistry of stratosphere and mesosphere; basic ionospheric processes; stratospheric pollution and ozone layer; physical chemistry of upper atmosphere clouds and aerosols; comparative photochemistry of planetary atmospheres; observational techniques and results. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

232. Chemical Transport Modeling. (4) Lecture, three hours. Requisites: courses M203A, 230A, 230B. Equations of tracer transport and chemical kinetics modeling in three dimensions; numerical techniques; coupled simulations of gas-phase and aerosol microphysics and chemistry; computational versus observational results; current problems in tracer modeling. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

234A. Cloud and Precipitation Physics I. (4) Lecture, three hours. Requisite: course 203B. Microstructure of atmospheric clouds; structure of three phases of water substance, including surface effects; thermodynamic theory for equilibrium between three phases of water substance, including surface effects; theory of homogeneous and heterogeneous nucleation of water drops and ice crystals. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

234B. Cloud and Precipitation Physics II. (4) Lecture, three hours. Requisite: course 234A. Theory of growth and evaporation of water drops and ice crystals by diffusion of water vapor; hydrodynamics of rigid bodies in viscous medium; hydrodynamics of cloud drops, rain drops, and atmospheric ice particles; growth of cloud drops and atmospheric ice particles by collision. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

M235. Ocean Biogeochemical Dynamics and Climate. (4) (Same as Ecology and Evolutionary Biology M238.) Lecture, three hours. Interaction of ocean biogeochemical cycles with physical climate system. Biogeochemical processes controlling carbon dioxide and oxygen in oceans and atmosphere over time-scales from few million years to several years. Anthropogenic perturbation of global carbon cycle and climate. Response of ocean ecosystems to past and future global changes. Use of isotopes to study ocean biogeochemical cycles and climate. Interactions between biogeochemical cycles on land and in ocean. S/U or letter grading.

240A. Radar Meteorology. (4) Lecture, three hours. Radar detection of spherical and nonspherical particles; use of radar in studying size distributions of cloud and precipitation particles, precipitation intensity and amount, updraft velocities, horizontal wind speed, and turbulence; radar observations of convective clouds, thunderstorms, tornadoes, hurricanes, squall lines, and fronts; clear air echoes. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

C240B. Remote Sensing. (4) Lecture, three hours. Requisites: Physics 1C or 6B. Theory and techniques of remote sensing; atmospheric spectroscopy; methods based on scattering, absorption, and extinction; passive and active techniques; inversion methods; remote sensing of terrestrial meteorological parameters and trace constituents; remote sensing of surfaces and biosphere; remote sensing of planetary atmospheres. Concurrently scheduled with course C160. S/U (for majors with consent of instructor after suc-

cessful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

244A. Atmospheric Radiation. (4) Lecture, three hours. Requisite: course 203B. Presentation of computational methods for solar and thermal infrared radiative fluxes and heating rates in clear, aerosol, and cloudy atmospheres for climate studies. Topics include line-by-line and correlated k-distribution methods for treating gaseous absorption, simplified methods for radiative transfer in Rayleigh and Lorenz/Mie atmospheres, and global radiative equilibrium. Use of user-friendly computer code required to perform calculations of radiative fluxes and heating rates in various atmospheric conditions for climate applications. S/U or letter grading.

244B. Radiation and Climate. (4) Lecture, three hours; laboratory, one hour. Requisite: course 203B. Radiation budget of Earth/atmosphere system observed from satellites. Introduction to one-dimensional radiative-convective and energy-balance climate models. Climatic impact of increases in greenhouse gases and anthropogenic aerosols. Climatic impact of changes in solar constant, solar insolation, and volcanic eruption. Radiative forcing in global climate models: clouds and aerosols. Role of radiation in numerical simulation of interannual variability. S/U or letter grading.

Upper Atmosphere and Space Physics

250A. Solar System Magnetohydrodynamics. (4) Lecture, three hours. Requisite: course C205A. Derivation of MHD equations with two fluid aspects, generalized Ohm's law, small amplitude waves, discontinuities, shock waves, and instabilities. Applications to statics and dynamics of solar wind and planetary magnetospheres and to solar wind/magnetosphere/ionosphere coupling. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

250B. Solar System Microscopic Plasma Processes. (4) Lecture, three hours. Requisite: course C205A. Adiabatic charged particle dynamics; incoherent radiation processes; collective effects in plasma; propagation characteristics of electrostatic and electromagnetic waves; introduction to resonant interaction between charged particles and plasma waves. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

256. Ionospheric Electrodynamics. (4) Lecture, three hours. Ionospheric structure, currents, and electric fields; equatorial and high-latitude ionospheres; ionospheric control of magnetospheric phenomena. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

257. Radiation Belt Plasma Physics. (4) Lecture, three hours. Requisite: course 250B. Turbulent plasma instabilities and their relation to satellite observations and magnetospheric structure. Processes responsible for source, loss, and transport of energetic radiation belt particles. S/U (for majors with consent of instructor after successful completion of written and oral comprehensive examination and for nonmajors at discretion of major department) or letter grading.

258. Sources and Losses of Magnetospheric Plasma. (4) Lecture, three hours. Transfer of plasma across magnetopause, sources for magnetotail, ionospheric plasma flow to magnetosphere, precipitation of magnetospheric particles, plasmasphere, and ring current. S/U or letter grading.

259. Space Weather. (4) Lecture, three hours. Identification, description, and theories for major disturbances in magnetosphere/ionosphere/thermosphere system. Storms, substorms, convection bays, and

other disturbances. Connections to interplanetary conditions, particle injection and precipitation, currents and fields. S/U or letter grading.

Special Studies

270. Seminar: Atmospheric Sciences. (2) Seminar, one hour. May be repeated for credit. S/U or letter grading.

271. Seminar: Atmospheric Dynamics. (2) Seminar, one hour. May be repeated for credit. S/U or letter grading.

M272A-M272B-M272C. Seminars: Climate Dynamics. (2 to 4 each) (Same as Earth and Space Sciences M270A-M270B-M270C and Geography M270A-M270B-M270C.) Seminar, two hours. Archaeological, geochemical, micropaleontological, and stratigraphic evidence for climate change throughout geological past. Rheology and dynamics of climatic subsystems: atmosphere and oceans, ice sheets and marine ice, lithosphere and mantle. Climate of other planets. Modeling, simulation, and prediction of modern climate on monthly, seasonal, and interannual time scale. May be repeated for credit. S/U or letter grading.

273. Seminar: Atmospheric Physics. (2) Seminar, one hour. May be repeated for credit. S/U or letter grading.

274. Seminar: Atmospheric Chemistry. (2) Seminar, one hour. May be repeated for credit. S/U or letter grading.

M275A-M275B-M275C. Seminars: Space Physics. (2-2-2) (Same as Earth and Space Sciences M288A-M288B-M288C.) Seminar, one hour. Problems of current interest concerning particles and fields in space. May be repeated for credit. S/U grading.

276. Seminar: Mesoscale Processes. (2) Seminar, one hour. Selected topics of current research interest in convection, extratropical cyclones, and fronts. May be repeated for credit. S/U or letter grading.

277. Seminar: Coastal Ocean. (2) Seminar, one hour. Selected topics of current interdisciplinary research in marine and coastal sciences, including physical oceanography, biogeochemistry, marine biology, coastal engineering, atmospheric processes, and health-related issues. May be repeated for credit. S/U grading.

281. Special Topics in Dynamic Meteorology. (2 to 4) Lecture, two hours. Individual meetings with instructor to be arranged. Content varies from year to year. S/U or letter grading.

282. Special Topics in Oceanography. (2 to 4) Lecture, two hours. Individual meetings with instructor to be arranged. May be repeated for credit. S/U or letter grading.

283. Special Topics in Atmospheric Physics. (2 to 4) Lecture, two hours. Individual meetings with instructor to be arranged. May be repeated for credit. S/U or letter grading.

284. Special Topics in Atmospheric Chemistry. (2 to 4) Lecture, two hours. Individual meetings with instructor to be arranged. May be repeated for credit. S/U or letter grading.

285. Special Topics in Solar Planetary Relations. (2 to 4) Lecture, two hours. Individual meetings with instructor to be arranged. Selected topics of current research interest in solar wind, magnetospheric, or ionospheric physics. S/U or letter grading.

296A-296L. Advanced Topics in Atmospheric Sciences. (2 each) Discussion, two hours. Advanced study and analysis of current topics in atmospheric sciences. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. S/U grading:

296A. Numerical Modeling of Atmosphere.

296B. Boundary Layers, Clouds, and Climate.

296C. Numerical Mesoscale Modeling.

296D. Climate Dynamics.

296E. Numerical Modeling of Atmosphere and Ocean.

296F. Hierarchical Modeling of Ocean/Atmosphere System.

296G. Upper Atmosphere and Space Physics.

296H. Recent Advances in Atmospheric Chemistry.

296I. Upper Atmospheric Dynamics.

296J. Experimental Mesoscale Meteorology.

296K. Tropical Meteorology.

296L. Geophysical Fluid Dynamics, Oceanography, and Climate.

296M. Radiation and Remote Sensing.

296P. Atmospheric Chemistry of Air Pollution, Aerosols, and Climate.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Teaching Atmospheric and Oceanic Sciences. (2) Seminar, one hour; two-day intensive training session prior to Fall Quarter. Required of all new teaching assistants and recommended for new Ph.D. students and graduate students intending to be teaching assistants during academic year. Introduction to classroom teaching for general education and upper division departmental courses. Topics include pedagogical techniques, preparation, academic integrity, and integration of technology and electronic communications. S/U grading.

596. Directed Studies for Graduate Students. (2 to 8) Tutorial, to be arranged. S/U grading.

597. Preparation for M.S. Comprehensive Examination. (2 to 8) Tutorial, to be arranged. S/U grading.

598. Research for and Preparation of M.S. Thesis. (2 to 8) Tutorial, to be arranged. S/U grading.

599. Research for Ph.D. Dissertation. (2 to 8) Tutorial, to be arranged. S/U grading.

BIOENGINEERING

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Timothy J. Deming, Ph.D., *Chair*

Professors

Denise Aberle, M.D.
Timothy J. Deming, Ph.D.
Warren S. Grundfest, M.D., FACS
Chih-Ming Ho, Ph.D. (*Ben Rich Lockheed Martin
Professor of Aeronautics*)
Edward E.R. McCabe, M.D., Ph.D. (*Mattel Executive
Endowed Professor of Pediatrics*)
Gerard C.L. Wong, Ph.D.

Professor Emeritus

Hooshang Kangarloo, Ph.D.

Associate Professors

James Dunn, M.D., Ph.D.
Daniel T. Kamei, Ph.D.
Jacob J. Schmidt, Ph.D.
Benjamin M. Wu, D.D.S., Ph.D.

Assistant Professors

Dino DiCarlo, Ph.D.
Andrea M. Kasko, Ph.D.

Adjunct Assistant Professor

Bill J. Tawil, M.B.A., Ph.D.

Scope and Objectives

Faculty members in the Department of Bioengineering believe that the interface between biology and the physical sciences represents an exciting area for science in the twenty-first century. Bioengineering has established itself as an independent field and engineering discipline, resulting in the formation of many new bioengineering departments and the redefinition of established programs. Faculty members have embraced this unique opportunity by developing an innovative curriculum, creating state-of-the-art facilities, and performing cutting-edge research.

Instead of treating bioengineering as an application of traditional engineering, it is taught as an applied science discipline in its own right. The bioengineering program is a structured compilation of unique forward-looking courses dedicated to producing graduates who are well-grounded in the fundamental sciences and highly proficient in rigorous analytical engineering tools necessary for lifelong success in the wide range of possible bioengineering careers. The program provides a unique engineering educational experience that responds to the growing needs and demands of bioengineering.

Undergraduate Study

The Bioengineering major is a designated capstone major. Utilizing knowledge from previous courses and new techniques learned from the capstone courses, undergraduate students work in teams to apply advanced knowledge of mathematics, science, and engineering principles to address problems at the interface of biology and engineering and to develop innovative bioengineering solutions to meet specific sets of design criteria. Coursework entails construction of student designs, project updates, presentation of final projects in written and oral format, and team competition.

Bioengineering B.S.

Capstone Major

Preparation for the Major

Required: Bioengineering 10; Chemistry and Biochemistry 20A, 20B, 20L, 30A, 30AL, 30B, 30BL; Computer Science 31; Life Sciences 2 (satisfies HSSEAS GE life sciences requirement), 3, 4; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 1C, 4AL, 4BL.

The Major

Required: Bioengineering 100, M106, 110, 120, 165EW (or Engineering 183EW or 185EW), 176, 180, Chemistry and Biochemistry 153A, Electrical Engineering 100; three technical breadth courses (12 units) selected from an approved list available in the Office of Academic and Student Affairs; three capstone design courses (Bioengineering 182A, 182B, 182C); and three major field elective courses (12 units) from Bioengineering M104, M105, M131, 180L, 181, 181L, 199 (8 units maximum), Biomedical Engineering C101, CM102, CM103, CM140, CM145, CM150, CM150L,

C170, C171, CM180, C181, CM183, C185, CM186B, CM186C, C187.

The three technical breadth and three major field elective courses may also be selected from one of the following tracks. Bioengineering majors cannot take bioengineering technical breadth courses to fulfill the technical breadth requirement.

Biomaterials and Regenerative Medicine: Bioengineering M104, M105, 199 (8 units maximum), Biomedical Engineering CM140, CM183, C185, C187, Chemistry and Biochemistry C140, C181, Materials Science and Engineering 104, 110, 111, 120, 130, 132, 140, 143A, 150, 151, 160, 161, Molecular, Cell, and Developmental Biology 168. The above materials science and engineering courses may be used to satisfy the technical breadth requirement.

Biomedical Devices: Bioengineering M131, 199 (8 units maximum), Biomedical Engineering CM172, Electrical Engineering 102, CM150 (or Mechanical and Aerospace Engineering CM180), CM150L (or Mechanical and Aerospace Engineering CM180L), Mechanical and Aerospace Engineering C187L. The electrical engineering or mechanical and aerospace engineering courses listed above may be used to satisfy the technical breadth requirement.

For Bioengineering 199 to fulfill a track requirement, the research project must fit within the scope of the track field, and the research report must be approved by the supervisor and vice chair.

For information on University and general education requirements, see the College and Schools section earlier in this catalog.

Bioengineering

Lower Division Course

10. Introduction to Bioengineering. (2) Lecture, two hours; discussion, one hour; outside study, three hours. Preparation: high school biology, chemistry, mathematics, physics. Introduction to scientific and technological bases for established and emerging subfields of bioengineering, including biosensors, bioinstrumentation, and biosignal processing, biomechanics, biomaterials, tissue engineering, biotechnology, biological imaging, biomedical optics and lasers, neuroengineering, and biomolecular machines. Letter grading.

Upper Division Courses

100. Bioengineering Fundamentals. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites or corequisites: Electrical Engineering 1 or Physics 1C, and Mathematics 32B. Fundamental basis for analysis and design of biological and biomedical devices and systems. Classical and statistical thermodynamic analysis of biological systems. Material, energy, charge, and force balances. Introduction to network analysis. Letter grading.

M104. Physical Chemistry of Biomacromolecules. (4) (Same as Biomedical Engineering CM104.) Lecture, three hours; discussion, two hours; outside study, seven hours. Requisites: Chemistry 20A, 20B, 30A, Life Sciences 2, 3. To understand biological materials and design synthetic replacements, it is imperative to understand their physical chemistry. Biomacromolecules such as protein or DNA can be analyzed and characterized by applying fundamentals of polymer physical chemistry. Investigation of polymer

structure and conformation, bulk and solution thermodynamics and phase behavior, polymer networks, and viscoelasticity. Application of engineering principles to problems involving biomacromolecules such as protein conformation, solvation of charged species, and separation and characterization of biomacromolecules. Letter grading.

M105. Biopolymer Chemistry and Bioconjugates. (4) (Same as Biomedical Engineering CM105.) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: Chemistry 20A, 20B, 20L. Highly recommended: one organic chemistry course. Bioconjugate chemistry is science of coupling biomolecules for wide range of applications. Oligonucleotides may be coupled to one surface in gene chip, or one protein may be coupled to one polymer to enhance its stability in serum. Wide variety of bioconjugates are used in delivery of pharmaceuticals, in sensors, in medical diagnostics, and in tissue engineering. Basic concepts of chemical ligation, including choice and design of conjugate linkers depending on type of biomolecule and desired application, such as degradable versus nondegradable linkers. Presentation and discussion of design and synthesis of synthetic bioconjugates for some sample applications. Letter grading.

M106. Topics in Biophysics, Channels, and Membranes. (4) (Same as Biomedical Engineering CM106.) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisites: Chemistry 20B, Life Sciences 2, 3, 4, Mathematics 33B, Physics 1C, 4AL, 4BL. Coverage in depth of physical processes associated with biological membranes and channel proteins, with specific emphasis on electrophysiology. Basic physical principles governing electrostatics in dielectric media, building on complexity to ultimately address action potentials and signal propagation in nerves. Topics include Nernst/Planck and Poisson/Boltzmann equations, Nernst potential, Donnan equilibrium, GHK equations, energy barriers in ion channels, cable equation, action potentials, Hodgkin/Huxley equations, impulse propagation, axon geometry and conduction, dendritic integration. Letter grading.

110. Biotransport and Bioreaction Processes. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: course 100, Computer Science 31, Mathematics 33B. Introduction to analysis of fluid flow, heat transfer, mass transfer, binding events, and biochemical reactions in systems of interest to bioengineers, including cells, tissues, organs, human body, extracorporeal devices, tissue engineering systems, and bioartificial organs. Introduction to pharmacokinetic analysis. Letter grading.

120. Biomedical Transducers. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: Chemistry 30A, Electrical Engineering 1 or Physics 1C, Mathematics 32B. Principles of transduction, design characteristics for different measurements, reliability and performance characteristics, and data processing and recording. Emphasis on silicon-based microfabricated and nanofabricated sensors. Novel materials, biocompatibility, biostability. Safety of electronic interfaces. Actuator design and interfacing control. Letter grading.

M131. Nanopore Sensing. (4) (Same as Biomedical Engineering CM131.) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: courses 100, 120, Life Sciences 2, 3, Physics 1A, 1B, 1C. Analysis of sensors based on measurements of fluctuating ionic conductance through artificial or protein nanopores. Physics of pore conductance. Applications to single molecule detection and DNA sequencing. Review of current literature and technological applications. History and instrumentation of resistive pulse sensing, theory and instrumentation of electrical measurements in electrolytes, nanopore fabrication, ionic conductance through pores and GHK equation, patch clamp and single channel measurements and instrumentation, noise issues, protein engineering, molecular sensing, DNA sequencing, membrane engineering, and future directions of field. Letter grading.

165EW. Bioengineering Ethics. (4) (Formerly numbered 165.) Lecture, four hours; discussion, three hours; outside study, five hours. All professions have ethical rules that derive from moral theory. Bioethics is well-established discipline that addresses ethical problems about life, such as when do fertilized eggs become people? Should ending of life ever be assisted? At what cost should it be maintained? Unlike physicians, bioengineers do not make these decisions in practice. Engineering ethics addresses ethical problems about producing devices from molecules to bridges, such as when do concerns about risk outweigh concerns about cost? When are weapons too dangerous to design? At what point does benefit of committing to building devices outweigh need to wait for more scientific confirmation of their effectiveness? Bioengineers must be aware of consequences of applying such devices to all living systems. Emphasis on research and writing within engineering environments. Satisfies engineering writing requirement. Letter grading.

M172. Design of Minimally Invasive Surgical Tools. (4) (Same as Biomedical Engineering CM172.) Lecture, three hours; discussion, two hours; outside study, seven hours. Requisites: Chemistry 30B, Life Sciences 2, 3, Mathematics 32A. Introduction to design principles and engineering concepts used in design and manufacture of tools for minimally invasive surgery. Coverage of FDA regulatory policy and surgical procedures. Topics include optical devices, endoscopes and laparoscopes, biopsy devices, laparoscopic tools, cardiovascular and interventional radiology devices, orthopedic instrumentation, and integration of devices with therapy. Examination of complex process of tool design, fabrication, testing, and validation. Preparation of drawings and consideration of development of new and novel devices. Letter grading.

176. Principles of Biocompatibility. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: Chemistry 153A, Electrical Engineering 1 or Physics 1C, Mathematics 33B. Biocompatibility at systemic, tissue, cellular, and molecular levels. Biomechanical compatibility, stress/strain constitutive equations, cellular and molecular response to mechanical signals, biochemical and cellular compatibility, immune response. Letter grading.

180. System Integration in Biology, Engineering, and Medicine I. (4) Lecture, three hours; discussion, two hours; outside study, seven hours. Requisites: courses 100, 110, 120, Life Sciences 3, Physics 4BL. Corequisite: course 180L. Part I of two-part series. Molecular basis of normal physiology and pathophysiology, and engineering design principles of cardiovascular and pulmonary systems. Fundamental engineering principles of selected medical therapeutic devices. Letter grading.

180L. System Integration in Biology, Engineering, and Medicine I Laboratory. (3) Lecture, one hour; laboratory, four hours; clinical visits, three hours; outside study, one hour. Corequisite: course 180. Hands-on experimentation and clinical applications of selected medical therapeutic devices associated with cardiovascular and pulmonary disorders. Letter grading.

181. System Integration in Biology, Engineering, and Medicine II. (4) Lecture, three hours; discussion, two hours; outside study, seven hours. Requisite: course 180L. Corequisite: course 181L. Part II of two-part series. Molecular basis of normal physiology and pathophysiology of selected organ systems; engineering design principles of digestive and urinary systems. Fundamental engineering principles of selected medical therapeutic devices. Letter grading.

181L. System Integration in Biology, Engineering, and Medicine II Laboratory. (3) Lecture, one hour; laboratory, four hours; clinical visits, three hours; outside study, one hour. Corequisite: course 181. Hands-on experimentation and clinical applications of molecular basis of normal physiology and pathophysiology of selected organ systems; engineering design principles of digestive and urinary systems. Letter grading.

182A-182B-182C. Bioengineering Capstone Design I, II, III. (4-4-4) Lecture, two hours; laboratory, six hours; outside study, four hours. Lectures, design seminars, and discussions with faculty advisory panel. Working in teams, students compete to develop innovative bioengineering solutions to meet specific set of design criteria (design and make strongest self-assembled biorobots or most stable UCLA logo or most selective and efficient biomarker sensors, etc.). Letter grading. **182A.** Requisites: course 120, Physics 4BL. Development, writing, and oral defense of student design proposals. **182B.** Requisite: course 182A. Exploration of different experimental and computational methods. Ordering of specific materials and software that are relevant to student projects. **182C.** Requisite: course 182B. Construction of student designs, project updates, presentation of final projects in written and oral format, and team competition.

M183. Targeted Drug Delivery and Controlled Drug Release. (4) (Same as Biomedical Engineering CM183.) Lecture, three hours; discussion, two hours; outside study, seven hours. Requisites: Chemistry 20A, 20B, 20L. New therapeutics require comprehensive understanding of modern biology, physiology, biomaterials, and engineering. Targeted delivery of genes and drugs and their controlled release are important in treatment of challenging diseases and relevant to tissue engineering and regenerative medicine. Drug pharmacodynamics and clinical pharmacokinetics. Application of engineering principles (diffusion, transport, kinetics) to problems in drug formulation and delivery to establish rationale for design and development of novel drug delivery systems that can provide spatial and temporal control of drug release. Introduction to biomaterials with specialized structural and interfacial properties. Exploration of both chemistry of materials and physical presentation of devices and compounds used in delivery and release. Letter grading.

188. Special Courses in Bioengineering. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Special topics in bioengineering for undergraduate students taught on experimental or temporary basis, such as those taught by resident and visiting faculty members. May be repeated once for credit with topic or instructor change. Letter grading.

194. Research Group Seminars: Bioengineering. (4) Seminar, three hours. Limited to bioengineering undergraduate students who are part of research group. Study and analysis of current topics in bioengineering. Discussion of current research literature in research specialty of faculty member teaching course. Student presentation of projects in research specialty. May be repeated for credit. Letter grading.

199. Directed Research in Bioengineering. (2 to 8) Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit with school approval. Individual contract required; enrollment petitions available in Office of Academic and Student Affairs. Letter grading.

BIOINFORMATICS

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Christopher J. Lee, Ph.D., *Chair*

Faculty Administrative Committee

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Christopher J. Lee, Ph.D. (*Chemistry and Biochemistry*)
Matteo Pellegrini, Ph.D. (*Molecular, Cell, and Developmental Biology*)
Qing Zhou, Ph.D. (*Statistics*)

Scope and Objectives

Bioinformatics is defined broadly as the study of the inherent structure of biological information. It is the marriage of biology and the information sciences. Examples of current bioinformatics research include the analysis of gene and protein sequences to reveal protein evolution and alternative splicing, the development of computational approaches to study and predict protein structure to further understanding of function, the analysis of mass spectrometry data to understand the connection between phosphorylation and cancer, the development of computational methods to utilize expression data to reverse engineer gene networks in order to more completely model cellular biology, and the study of population genetics and its connection to human disease.

Graduates in bioinformatics can expect to engage in any combination of research, teaching, clinical service, and consultation. Within universities and research centers there is a growing need for bioinformatics researchers who can analyze new sources of high-throughput experimental data in biology, medicine, and bioengineering. Biotechnology and pharmaceutical companies also seek bioinformatics graduates for applied research on disease—and drug discovery. Medical centers are also increasingly hiring bioinformatics graduates as genomics data become important in medical research and clinical applications.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Bioinformatics Program offers Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Bioinformatics.

Bioinformatics

Upper Division Course

199. Directed Research in Bioinformatics. (2 to 4) Tutorial, six to 12 hours. Limited to juniors/seniors. Supervised individual research under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. Letter grading.

Graduate Courses

M202. Bioinformatics Interdisciplinary Research Seminar. (4) (Same as Chemistry M202.) Seminar, two hours; discussion, two hours. Concrete examples of how biological questions about genomics data map to and are solved by methodologies from other disciplines, including statistics, computer science, and mathematics. May be repeated for credit. S/U or letter grading.

M252. Seminar: Advanced Methods in Computational Biology. (2) (Same as Chemistry M252 and Human Genetics M252.) Seminar, one hour; discussion, one hour. Designed for advanced graduate students. Examination of computational methodology in bioinformatics and computational biology through presentation of current research literature. How to select and apply methods from computational and mathematical disciplines to problems in bioinformatics and computational biology; development of novel methodologies. S/U or letter grading.

M260A. Introduction to Bioinformatics. (4) (Same as Chemistry CM260A, Computer Science CM221, and Human Genetics M260A.) Lecture, three hours; discussion, one hour. Enforced requisites: Biostatistics 100A or 110A or Mathematics 170A or Statistics 100A or 110A, and Computer Science 180 or Program in Computing 60 with grade of C– or better. Introduction to bioinformatics and methodologies, with emphasis on concepts and inventing new bioinformatic methods. Focus on sequence analysis and alignment algorithms. S/U or letter grading.

M271. Statistical Methods in Computational Biology. (4) (Same as Biomathematics M271 and Statistics M254.) Lecture, three hours; discussion, one hour. Preparation: elementary probability concepts. Requisite: course M260A or Statistics 100A or 200A. Introduction to statistical methods developed and widely applied in several branches of computational biology, such as gene expression, sequence alignment, motif discovery, comparative genomics, and biological networks, with emphasis on understanding of basic statistical concepts and use of statistical inference to solve biological problems. Letter grading.

296. Seminar: Research Topics in Bioinformatics. (2) Seminar, to be arranged; discussion, three hours. Advanced study and analysis of current research topics in bioinformatics. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

596. Directed Individual Study or Research in Bioinformatics. (2 to 12) Tutorial, to be arranged. May be repeated for credit. S/U grading.

597. Preparation for M.S. Comprehensive Examination or Ph.D. Qualifying Examinations. (2 to 12) Tutorial, to be arranged. May be repeated for credit. S/U grading.

598. M.S. Thesis Research and Writing. (2 to 12) Tutorial, to be arranged. May be repeated for credit. S/U grading.

599. Ph.D. Dissertation Research and Writing. (2 to 12) Tutorial, to be arranged. May be repeated for credit. S/U grading.

BIOLOGICAL CHEMISTRY

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Professors

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Michael F. Carey, Ph.D.
John J. Colicelli, Ph.D.
Edward M.F. De Robertis, M.D., Ph.D. (*Norman F. Sprague Professor of Molecular Oncology*)
Peter A. Edwards, Ph.D.
David S. Eisenberg, D.Phil. (*Paul D. Boyer Professor of Molecular Biology and Biochemistry*)
Judith C. Gasson, Ph.D.
Michael Grunstein, Ph.D.
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Geraldine A. Weinmaster, Ph.D.
S. Larry Zipursky, Ph.D.

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John Edmond, Ph.D.
Samuel Eiduson, Ph.D.
Robert M. Fink, Ph.D.
Armand J. Fulco, Ph.D.
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Sidney Roberts, Ph.D.
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Irving Zabin, Ph.D.
Patrice J. Zamenhof, Ph.D.

Associate Professors

Siavash K. Kurdistani, M.D., Ph.D.
Timothy F. Lane, Ph.D.

Assistant Professors

Pascal F. Egea, Ph.D.
Alison R. Frand, Ph.D.
Feng Guo, Ph.D.
Kathrin Plath, Ph.D.
James A. Wohlschlegel, Ph.D.

Adjunct Professor

Lenore Arab, M.Sc., Ph.D.

Adjunct Assistant Professors

Michaela B. Elowitz, Ph.D.
Eryn Ujita Lee, Ph.D.

Scope and Objectives

The biological chemistry graduate program prepares students for careers as independent research scientists and scholars. Laboratory

research is the central element. Biological chemistry has grown to include studies of cellular, molecular, and developmental biology, molecular genetics and genetic engineering, and many aspects of the health sciences. The research activities of the department include these areas as well as the classic topics of metabolism, enzymology, and biomolecular structure. Courses and seminar programs are designed to provide students with the necessary background and approach to encourage their continuing growth in these rapidly changing areas of science.

Interaction with other graduate programs provides access to scientists in a variety of related disciplines. Through its primary affiliation with the David Geffen School of Medicine, the department is also involved in the basic education of students who will be physicians, dentists, and other health professionals. Many of these students become involved in laboratory research in the department. In part because of this breadth of experience students find careers in many aspects of basic and applied scientific research and education. The department emphasizes study for the Ph.D., but candidates for the M.S. degree may be accepted under special circumstances.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Biological Chemistry offers Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Biological Chemistry.

Biological Chemistry

Upper Division Courses

M140. Cell Biology: Cell Cycle. (5) (Same as Molecular, Cell, and Developmental Biology M140.) Lecture, four hours; discussion, one hour. Prerequisites: Chemistry 14A, 14B, and 14BL, or 20A, 20B, and 20L, Life Sciences 3, 4. Not open for credit to students with credit for Molecular, Cell, and Developmental Biology 165A and 165B. Satisfies premedical requirements. Eukaryotic cellular structures and biogenesis at molecular level. Biochemical and genetic analysis of cell cycle, signal transduction, and their involvement in development and cancer. Protein sorting and transport across cell membranes. Cytoskeletal components and cell-adhesion. Letter grading.

191. Variable Topics Research Seminars: Contemporary Biology. (2) Seminar, two hours. Designed for undergraduate fellows in Howard Hughes Undergraduate Research Program. Presentation of weekly seminars on research literature in fields of biochemistry and molecular biology. Reading, discussion, and development of culminating project. May be repeated for credit. P/NP grading.

194. Research Group Seminars: Biological Chemistry. (2) Seminar, two hours. Designed for undergraduate students who are part of research group. Discussion of research methods and current literature in field or of research of faculty members or students. May be repeated for credit. P/NP grading.

199. Directed Research or Senior Project in Biological Chemistry. (2 to 8) Tutorial, two hours. Limited to Juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for maximum of 16 units. Individual contract required. P/NP or letter grading.

Graduate Courses

201A-201B. Biological Chemistry. (5-5) Lecture, five hours. Preparation: organic chemistry. Open to nonmedical students with consent of instructor. Primarily for first-year medical students and runs throughout School of Medicine's second semester. General biochemistry with emphasis on mammalian systems. Structure, function, and metabolism of major cellular components. To receive credit, both courses must be taken together in same academic year. In Progress (201A) and S/U (201B) grading.

204. Human Biological Chemistry and Nutrition Laboratory. (3) Laboratory, four hours. Open to non-medical students with consent of instructor. Experiments illustrating techniques and procedures in medically related biochemistry and nutrition, analysis of experimental results. S/U or letter grading.

205. Biological Chemistry and Nutrition Lecture: Dental Students. (6) Lecture, six hours; computer laboratory. Designed for dental students. Biochemical and genetic factors influencing normal and disease states: structure and metabolism of cellular constituents, intermediary metabolism and its regulation, endocrine and neurobiochemical mechanisms, connective tissue/mineralization. Includes computer laboratory and self-instruction on dietary assessment in dentistry. S/U or letter grading.

220A-220B-220C. Research Laboratory Rotations. (2 to 8 each) Laboratory, two to eight hours. Students arrange apprenticeships in laboratories of one or more departmental faculty members and engage in research project under close faculty direction. Allows students to acquire in-depth laboratory experience in specific research areas and facilitates informed decision on their part in selection of thesis/research adviser. S/U grading.

M223. Membrane Molecular Biology. (4) (Same as Physiology M223.) Lecture, two hours; discussion, two hours. Prerequisite: course CM253. Advanced course in molecular aspects of membrane physiology and biochemistry covering lipids and physical chemistry of biological membranes; membrane biogenesis and targeting of proteins to membranes; pumps, carriers, and channels; receptors and transmembrane signaling. S/U or letter grading.

M234. Genetic Control of Development. (4) (Same as Molecular, Cell, and Developmental Biology M234.) Lecture, four hours. Topics at forefront of molecular developmental biology, including problems in oogenesis and early embryogenesis, pattern formation, axis determination, nervous system development, cellular morphogenesis, and cell-cell and cell-matrix interactions. S/U or letter grading.

M237. Cellular and Molecular Basis of Disease. (4) (Same as Pathology M237.) Lecture, two hours; discussion, two hours. Preparation: one course each in molecular biology, cell biology, and biological chemistry. Discussion of key issues in disease mechanisms, with emphasis on experiments leading to understanding of these mechanisms. Identification of important questions still remaining unanswered. S/U or letter grading.

251A-251B-251C. Seminars: Transcriptional Regulation. (2-2-2) Seminar, two hours. Advanced courses on mechanics of gene transcription in both eukaryotes and prokaryotes intended for students actively working or highly interested in transcription. S/U grading.

254A-254D. Concepts in Molecular Biosciences. (3 each) Lecture, three hours; discussion, two hours. Letter grading:

254A. (3) Lecture, three hours; discussion, two hours. Five-week course covering four basic experimental approaches of biochemistry and molecular biology in context of various specific topics, including (1) structural biology, with protein and nucleic acid structure and molecular recognition, (2) use of cell-free and purified *in vitro* systems to dissect reaction mechanisms, (3) biochemical approaches to dissecting complex reactions/pathways in cells, and (4) enzymology and protein chemistry. Letter grading.

254B. (3) Five-week course. Lecture, three hours; discussion, two hours. Enforced prerequisite: course 254A. Important biological problems that have been genetically analyzed in different organisms or small number of related problems. Major genetic approaches used in relevant organisms, including both forward and reverse genetic approaches, genetic interactions between genes (genetic enhancers and suppressors), transgenic technology, and systematic genomic strategies. Letter grading.

254C. (3) Five-week course. Lecture, three hours; discussion, two hours. Enforced prerequisites: courses 254A, 254B. Molecular mechanisms underlying complex problems in cell biology. Experimental approaches used to define mechanisms involved in protein targeting, cell structure and subcellular organization, cell communication, and intracellular signaling. Analysis of pathways that connect these cellular processes. Letter grading.

254D. (3) Five-week course. Lecture, three hours; discussion, two hours. Enforced prerequisites: courses 254A, 254B, 254C. Application of biochemical, molecular biological, genetic, and cell biological approaches to understand specialized topics in life and biomedical sciences, including developmental disease, stem cell biology, synaptic transmission in nervous system, cancer, and heart disease. Letter grading.

M263. Metabolism and Its Regulation. (4) (Same as Chemistry M263.) Lecture, three hours. Requisites: courses 201A and 201B, or Chemistry 153B, 153C, or 156, and 110A. Thermodynamic and kinetic aspects of metabolism; regulatory properties of enzymes; metabolic regulation; consideration of comparative aspects of metabolism in relation to physiological function. S/U or letter grading.

266A-266B-266C. Seminars: Molecular Embryology. (2-2-2) Seminar, two hours. Advanced courses in developmental genetics and biochemistry, with emphasis on early development. Intended mostly for students actively working or highly interested in embryology. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

596. Directed Individual Study and Research. (2 to 12) Tutorial, to be arranged. S/U or letter grading.

597. Preparation for Examinations. (2 to 4) Tutorial, to be arranged. Individual study for Ph.D. qualifying examinations or M.S. comprehensive examination. S/U grading.

598. Preparation of M.S. Thesis. (4) Tutorial, to be arranged. Preparation of research data and writing of M.S. thesis. S/U grading.

599. Research for and Preparation of Ph.D. Dissertation. (2 to 12) Tutorial, to be arranged. Preparation of research data and writing of Ph.D. dissertation. S/U grading.

BIOLOGY

See Ecology and Evolutionary Biology

BIOMATHEMATICS

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Assistant Professor

Van M. Savage, Ph.D.

Lecturer

Jeffrey Gornbein, Dr.P.H.

Adjunct Associate Professor

Eli Engel, M.D., Ph.D.

Scope and Objectives

As biology advances rapidly in quantitative research methods, both the need for and possibility of closely associated theoretical research increases. On numerous medical and medical science frontiers—such as genetics, molecular biology, oncology, pharmacology, neurosciences, and physiology—biomathematics is contributing both in its basic research and the development of specialized computer software to support investigation and healthcare. UCLA has one of the few departments in this rapidly evolving field.

The department's orientation is away from abstract modeling and toward theoretical research vital to the advancement of current biomedical research frontiers. The doctoral program reflects this in requirements for advanced training in a biomedical research specialty and for the mathematical and computing skills required to contend realistically with complex phenomena encountered in biology and medicine. The art of biomathematical research is developed individually from the first year on. The master's program adapts to the needs of

researchers desiring supplemental biomathematical training.

The Department of Biomathematics welcomes both undergraduate and graduate students in other majors to its courses in modeling, biomedical computing, and statistics. Premedical majors with mathematical/computer interests can receive early guidance toward an M.D./Ph.D. program in Biomathematics. The department also provides statistical and biomathematical training in the medical curriculum and postgraduate medical programs.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Biomathematics offers Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Biomathematics and the Master of Science (M.S.) degree in Clinical Research.

Biomathematics

Upper Division Courses

106. Introduction to Cellular Modeling. (4) Lecture, four hours; computer laboratory, two hours. Preparation: some computer programming. Requisite: Mathematics 32A. Designed for upper division science majors and biomedical graduate students. Introduction to modeling cells and cell systems, including intracellular biochemical networks, applications to cancer research. How to develop one's own computer models using IMSL mathematics subroutines. P/NP or letter grading.

108. Introduction to Modeling in Neurobiology. (4) Lecture, four hours; computer laboratory, two hours. Preparation: some computer programming. Requisite: Mathematics 32A. Designed for upper division science majors and biomedical graduate students. Survey of wide variety of topics in neurobiological modeling, current neuronal modeling systems. Development of skills to formulate and program one's own studies using IMSL mathematics subroutines. P/NP or letter grading.

C108C. Introduction to Neural Networks: Modeling and Applications. (4) Lecture, three hours. Preparation: calculus. Introduction to theory of neural networks and their applications. Survey of current neural-network models of cognitive functions. Concurrently scheduled with course CM208C. P/NP or letter grading.

110. Elements of Biomathematics. (4) Lecture, three hours; laboratory, three hours. Preparation: calculus. Analysis of deterministic models. Conditions under which deterministic and probabilistic descriptions of biological phenomena are appropriate. Both approaches applied to selected examples in physiology and biology. P/NP or letter grading.

160. Introductory Biomathematics for Medical and Biological Research. (4) Lecture, four hours; discussion, 90 minutes. Elementary statistics course that focuses on statistical concepts and critiques literature, with emphasis on clinical research. Output from statistical computer packages discussed in class, but students do not use computer themselves. Topics include descriptive statistics, t-tests, confidence intervals, linear regression and correlation, analysis of

variance, nonparametric statistics, basic experimental design, sample size determination, article interpretation. P/NP or letter grading.

170A. Computer-Based Introductory Biomathematics for Medical and Biological Experimenters.

(4) Lecture, four hours; discussion, 90 minutes. Intensive elementary statistics course emphasizing design of experiments and analysis of data using statistical packages. Statistical topics similar to course 160—descriptive statistics, t-tests, confidence intervals, linear regression and correlation, analysis of variance, nonparametric statistics, basic experimental design, sample size determination—but students also shown how to use computer and run statistical software packages. Practical aspects of data collection and cleaning. P/NP or letter grading.

170B. Statistical and Mathematical Modeling in Medical and Biological Research. (4) Lecture, four hours; discussion, 90 minutes. Second course in biomathematical methods. Topics include randomization methods, intermediate experimental design, contingency table analysis, analysis of variance, multiple linear regression, nonlinear regression, methods of classification, model checking, basic mathematical models including compartment models, and statistical computer software. Students have opportunity to design their own experiments and analyze them on computer, and to analyze previously collected data. P/NP or letter grading.

171. Applied Regression Analysis in Medical Sciences. (4) Lecture, three hours; laboratory, one hour. Requisite: course 170A. Proficiency in applied regression analysis, with focus on interpretation of results and performing computation. Primary topics include simple linear regression, multiple regression, regression model selection, analysis of variance, logistic regression, and survival analysis. Letter grading.

190HA-190HB. Honors Research in Biomathematics. (4-4) Tutorial, to be arranged. Limited to juniors/seniors. Individual research in some aspect of biomathematics designed to acquaint students in depth with mathematical models and computer applications in biology. Must be taken for at least two terms and for total of at least 8 units. Thesis required. P/NP or letter grading.

197. Individual Studies in Biomathematics. (2 to 4) Tutorial, four hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

199. Directed Research or Senior Project in Biomathematics. (2 to 8) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200. Research Frontiers in Biomathematics. (2) Lecture, two hours. Series of presentations by faculty members on research frontiers in biomathematics. S/U grading.

201. Deterministic Models in Biology. (4) Lecture, three hours; laboratory, three hours. Preparation: knowledge of linear algebra and differential equations. Examination of conditions under which deterministic approaches can be employed and conditions where they may be expected to fail. Topics include compartmental analysis, enzyme kinetics, physiological control systems, and cellular/animal population models. S/U or letter grading.

202. Biological Systems: Structure, Function, Evolution. (4) Lecture, four hours. Preparation: knowledge of calculus, differential equations, and partial differential equations. Introduction to concepts, equations, and approximations that describe structure and function of biological systems, evolutionary principles, and network design and dynamics. Topics include cancer initiation and progression, gene expres-

sion, epistasis, response to fluctuating environments, network structure, and functional traits. S/U or letter grading.

M203. Stochastic Models in Biology. (4) (Same as Human Genetics M203.) Lecture, four hours. Requisite: Mathematics 170A or equivalent experience in probability. Mathematical description of biological relationships, with particular attention to areas where conditions for deterministic models are inadequate. Examples of stochastic models from genetics, physiology, ecology, and variety of other biological and medical disciplines. S/U or letter grading.

204. Biomedical Data Analysis. (4) Lecture, four hours. Quantity and quality of observations have been greatly affected by present-day extensive use of computers. Problem-oriented study of latest methods in statistical data analysis and use of such arising in laboratory and clinical research. S/U or letter grading.

206. Introduction to Mathematical Oncology. (4) Lecture, four hours; computer laboratory, two hours. Preparation: ordinary partial differential equations, one computer programming course. Deterministic and stochastic modeling of cell metabolism, colony growth, and responses to radio-, chemo-, and immunotherapeutic agents applied to carcinogenesis, therapy, emergence of resistance to therapy. Simulation, optimization methods introduced. Current literature review. S/U or letter grading.

M207A. Theoretical Genetic Modeling. (4) (Same as Biostatistics M272 and Human Genetics M207A.) Lecture, three hours; discussion, one hour. Requisites: Mathematics 115A, 131A, Statistics 100B. Mathematical models in statistical genetics. Topics include population genetics, genetic epidemiology, gene mapping, design of genetics experiments, DNA sequence analysis, and molecular phylogeny. S/U or letter grading.

M207B. Applied Genetic Modeling. (4) (Same as Biostatistics M237 and Human Genetics M207B.) Lecture, three hours; laboratory, one hour. Requisites: Biostatistics 110A, 110B. Methods of computer-oriented human genetic analysis. Topics include statistical methodology underlying genetic analysis of both quantitative and qualitative complex traits. Laboratory for hands-on computer analysis of genetic data; laboratory reports required. Course complements M207A; students may take either and are encouraged to take both. S/U or letter grading.

208A. Modeling in Neurobiology for Mathematicians. (4) Lecture, four hours; laboratory, two hours. Preparation: introductory ordinary partial differential equations, programming experience. Introduction to electrochemical bases for nerve function and mathematical and computational methods for studying this, appropriate for physicists, engineers, and mathematicians. Survey of current leading research areas and software systems. S/U or letter grading.

208B. Modeling in Neurobiology for Biologists. (4) Lecture, four hours; laboratory, two hours. Preparation: lower division calculus, some elementary programming experience. Introduction to neuronal modeling, including how to formulate models and study them with existing computer software (e.g., NODUS) or one's own simple programs that use IMSL subroutines. Survey of current leading research areas. S/U or letter grading.

CM208C. Introduction to Neural Networks: Modeling and Applications. (4) (Same as Psychiatry M209.) Lecture, three hours. Preparation: calculus. Introduction to theory of neural networks and their applications. Survey of current neural-network models of cognitive functions. Concurrently scheduled with course C108C. S/U or letter grading.

210. Optimization Methods in Biology. (4) Lecture, four hours. Preparation: undergraduate mathematical analysis and linear algebra; familiarity with programming language such as Fortran or C. Modern computational biology relies heavily on finite-dimensional optimization. Survey of theory and numerical methods for discrete and continuous optimization, with applications from genetics, medical imaging, pharmacokinetics, and statistics. S/U or letter grading.

M211. Mathematical and Statistical Phylogenetics.

(4) (Same as Biostatistics M239 and Human Genetics M211.) Lecture, three hours; laboratory, one hour. Requisites: Biostatistics 110A, 110B, Mathematics 170A. Theoretical models in molecular evolution, with focus on phylogenetic techniques. Topics include evolutionary tree reconstruction methods, studies of viral evolution, phylogeography, and coalescent approaches. Examples from evolutionary biology and medicine. Laboratory for hands-on computer analysis of sequence data. S/U or letter grading.

212. Nonlinear Dynamics in Biological Systems.

(4) Lecture, three hours; discussion, one hour. Required preparation: elementary knowledge of ordinary differential equations, partial differential equations, and computer programming. Mathematical bases of nonlinear dynamics and self-organization in temporal and spatial systems, with applications to biological systems. Topics range from bifurcation theory in low dimension to pattern formation in high dimension. Use of biologically important examples to illustrate applications of these dynamics, including gene regulation and protein-protein interaction networks, glycolytic and metabolic oscillations, circadian rhythms, cell cycle controls, intracellular calcium cycling, pattern formation in morphogenesis, and action potential models and electrical wave formation and propagation in nerve and cardiac systems. S/U or letter grading.

213. Modeling Vascular Networks. (4) Lecture, four hours. Recommended preparation: calculus, differential equations, complex analysis, elementary knowledge of partial differential equations. Introduction to equations that describe fluid flow dynamics and branching, and hierarchical networks to provide survey of models for structure and flow of vascular systems. Vascular systems are nearly ubiquitous in nature, occurring across animals, plants, and other organisms. Coverage of applications to tumor growth and angiogenesis, sleep, allometric scaling, and other phenomena. S/U or letter grading.

220. Kinetic and Steady State Models in Pharmacology and Physiology.

(4) Lecture, four hours. Recommended preparation: knowledge of linear algebra, differential equations, statistics. Designed for biologists and theoreticians. Modeling and data analysis in pharmacokinetics, enzyme kinetics, and endocrinology. Topics include compartmental and noncompartmental approaches, steady state analysis of transport and binding processes, and optimal experimental design. S/U or letter grading.

M230. Computed Tomography: Theory and Applications.

(4) (Same as Biomedical Physics M230.) Lecture, four hours. Computed tomography is three-dimensional imaging technique being widely used in radiology and is becoming active research area in biomedicine. Basic principles of computed tomography (CT), various reconstruction algorithms, special characteristics of CT, physics in CT, and various biomedical applications. S/U or letter grading.

M231. Statistical Methods for Categorical Data.

(4) (Same as Biostatistics M210.) Lecture, three hours; discussion, one hour. Requisites: Biostatistics 100B or 110B, Statistics 100B. Statistical techniques for analysis of categorical data; discussion and illustration of their applications and limitations. S/U or letter grading.

M232. Statistical Analysis of Incomplete Data.

(4) (Same as Biostatistics M232.) Lecture, three hours; discussion, one hour. Requisite: Statistics 100B. Discussion of statistical analysis of incomplete data sets, with material from sample survey, econometric, biometric, psychometric, and general statistical literature. Topics include treatment of missing data in statistical packages, missing data in ANOVA and regression imputation, weighting, likelihood-based methods, and nonrandom nonresponse models. Emphasis on application of methods to applied problems, as well as on underlying theory. S/U or letter grading.

M234. Applied Bayesian Inference.

(4) (Same as Biostatistics M234.) Lecture, three hours; discussion, one hour; laboratory, one hour. Requisites: Biostatistics 115 (or Statistics 100C), 200A. Bayesian approach to statistical inference, with emphasis on bio-

medical applications and concepts rather than mathematical theory. Topics include large sample Bayes inference from likelihoods, noninformative and conjugate priors, empirical Bayes, Bayesian approaches to linear and nonlinear regression, model selection, Bayesian hypothesis testing, and numerical methods. S/U or letter grading.

M243. Condensed Matter Physics of Cells. (4) (Same as Physics M243L.) Seminar, four hours. Designed for graduate students. Basic paradigms of condensed matter physics and applications to biophysical modeling. S/U or letter grading.

258. Introduction to Clinical Trials. (2) Lecture, two hours. Requisites: courses 170A, 171. Limited to M.S. in Clinical Research students. Introduction to basic principles of good clinical trial design, trial implementation, and analysis. Letter grading.

259. Controversies in Clinical Trials. (2) Lecture, one hour; discussion, one hour. Preparation: completion of professional health sciences or M.D. degree. Required of all M.S. in Clinical Research students. Discussion and analysis of eight published and well-known trials with students, one invited clinical faculty member, and course director. Development of critical ability to evaluate trial design and pitfalls. S/U or letter grading.

M260A-M260B. Methodology in Clinical Research I, II. (4-4) (Same as Medicine M260A-M260B.) Lecture, four hours. Recommended preparation: M.D., Ph.D., or dental degree. Requisites: courses 170A, 265A. Course M260A is requisite to M260B. Presentation of principles and practices of major disciplines underlying clinical research methodology, such as biostatistics, epidemiology, pharmacokinetics. S/U or letter grading.

M260C. Methodology in Clinical Research III. (4) (Same as Medicine M260C.) Discussion, four hours. Recommended preparation: M.D., Ph.D., or dental degree. Presentation of principles and practices of major disciplines underlying clinical research methodology, such as biostatistics, epidemiology, pharmacokinetics. S/U or letter grading.

M261. Ethics in Patient-Oriented Research. (2) (Same as Medicine M261.) Lecture, two hours; discussion, two hours. Discussion of current issues in responsible conduct of clinical research, including reporting of research, basis for authorship, issues in genetic research, principles and practice of research on humans, conflicts of interest, Institutional Review Board (IRB), and related topics. S/U or letter grading.

M262. Communication of Science. (2) (Same as Psychiatry M230.) Lecture, two hours; discussion, one hour. Presentation of various types of scientific writings and their good practice. Details of writing specific articles: methods, results, discussion. Writing of review article. Grant submissions: aims, background, results, design. Role of appendices. Communication with lay public. S/U or letter grading.

M263. Clinical Pharmacology. (2) (Same as Medicine M263 and Psychiatry M263.) Lecture, two hours. Preparation: completion of professional health sciences degree (M.D., D.D.S., D.N.Sc., or Ph.D.). Overview of principles of clinical pharmacology, especially as they relate to clinical and translational medicine and to advances in contemporary medicine such as targeting, gene therapy, and genomics. Letter grading.

265A. Data Analysis Strategies I. (4) (Formerly numbered 264.) Lecture, two hours; laboratory, two hours. Preparation: M.D. or Ph.D. degree. Requisite: course 170A. Designed to provide students with hands-on experience developing and testing hypotheses using various types of databases. Topics include developing testable hypothesis, data management, and analysis strategies and written presentation of findings. Experience with full process of hypothesis generation, operationalization of variables, selection of analysis techniques, and presentation of findings so students are better prepared to complete data analysis, interpretation of results, and written presentation of their findings (e.g., for master's thesis and subsequent articles). Students encouraged to provide

their own data. Databases provided for use in completing exercises for those without available data. Letter grading.

265B. Data Analysis Strategies II. (2) Lecture, one hour; laboratory, one hour. Requisite: course 265A. Continuation of course 265A; use of SAS computer language. Letter grading.

266. Advanced Biostatistics. (4) Lecture, three hours; discussion, one hour. Requisite: course 171. Continuation of course 171. Some traditional multivariate methods, such as principle components, factor analysis, cluster analysis, and more contemporary methods, including recursive partitioning and missing data. Multilevel and longitudinal analysis. Letter grading.

M270. Optimal Parameter Estimation and Experiment Design for Biomedical Systems. (4) (Same as Biomedical Engineering M296B, Computer Science M296B, and Medicine M270D.) Lecture, four hours; outside study, eight hours. Requisite: course 220 or Computer Science M296A. Estimation methodology and model parameter estimation algorithms for fitting dynamic system models to biomedical data. Model discrimination methods. Theory and algorithms for designing optimal experiments for developing and quantifying models, with special focus on optimal sampling schedule design for kinetic models. Exploration of PC software for model building and optimal experiment design via applications in physiology and pharmacology. Letter grading.

M271. Statistical Methods in Computational Biology. (4) (Same as Bioinformatics M271 and Statistics M254.) Lecture, three hours; discussion, one hour. Preparation: elementary probability concepts. Requisite: Bioinformatics M260A or Statistics 100A or 200A. Introduction to statistical methods developed and widely applied in several branches of computational biology, such as gene expression, sequence alignment, motif discovery, comparative genomics, and biological networks, with emphasis on understanding of basic statistical concepts and use of statistical inference to solve biological problems. Letter grading.

273. Stochastic Modeling in Molecular Cellular Biophysics. (4) Lecture, three hours; discussion, one hour. Requisite: Mathematics 170A or equivalent experience in probability, lower division physics, or physical chemistry. Most molecular systems are large collections of molecules; behavior of such systems is stochastic. Mathematical descriptions of biochemical reactions with and without energy dissipation, molecular structures, and biophysical techniques that measure various biological processes. S/U or letter grading.

M280. Statistical Computing. (4) (Same as Biostatistics M280 and Statistics M230.) Lecture, three hours. Requisites: Mathematics 115A, Statistics 100C. Introduction to theory and design of statistical programs: computing methods for linear and nonlinear regression, dealing with constraints, robust estimation, and general maximum likelihood methods. Letter grading.

M281. Survival Analysis. (4) (Same as Biostatistics M215.) Lecture, three hours; discussion, one hour. Requisite: Biostatistics 115 or Statistics 100C. Statistical methods for analysis of survival data. S/U or letter grading.

M282. Longitudinal Data. (4) (Same as Biostatistics M236.) Lecture, three hours; discussion, one hour; laboratory, one hour. Requisites: Biostatistics 200A, one other 200-level biostatistics or statistics course. Longitudinal data analysis, graphing longitudinal data, specifying predictors, modeling variances and covariance, inference, computing, hierarchical models, and random effects. S/U or letter grading.

M284. Methodology of Clinical Trials. (4) (Same as Biostatistics M238.) Lecture, three hours; discussion, two hours. Requisites: course M281, Biostatistics 200A. Methodological principles of clinical trials, actual practice and principles of trials. Considerable focus on phase two trials and multiclinical phase three trials. Emphasis on major inferential issues. S/U or letter grading.

296A-296B. Advanced Topics in Clinical Pharmacology. (2-2) Lecture, one hour; discussion, one hour. Review of pharmacokinetics, drug metabolism and transport, assessment of drug effects, drug therapy in special populations, and contemporary drug development. S/U or letter grading.

299. Special Topics in Clinical Research. (2 to 4) Seminar, three hours. Requisites: courses M260A, M260B. Advanced study and analysis of current topics in clinical research. Discussion of current research and literature in research specialty of faculty member teaching course. Content varies from term to term and may include lectures from visiting scientists. May be repeated for credit with consent of instructor. S/U or letter grading.

596. Directed Individual Study or Research in Biomathematics. (2 to 12) Tutorial, to be arranged. Individual study on topics not yet covered by offerings of department. May be repeated for credit with topic change. S/U or letter grading.

597. Preparation for M.S. or Ph.D. Comprehensive Examination or Ph.D. Qualifying Examinations. (2 to 8) Tutorial, to be arranged. Individual study. S/U grading.

599. Research for and Preparation of Ph.D. Dissertation. (2 to 12) Tutorial, to be arranged. S/U grading.

BIOMEDICAL ENGINEERING

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Faculty Administrative Committee

Denise Aberle, M.D. (*Radiological Sciences*)
Alex Bui, Ph.D. (*Radiological Sciences*)
Mark S. Cohen, Ph.D. (*Neurology, Psychiatry and Biobehavioral Sciences, Radiological Sciences*)
Timothy J. Deming, Ph.D. (*Bioengineering, Chemistry and Biochemistry*)
Joseph J. DiStefano III, Ph.D. (*Computer Science*)
James Dunn, M.D., Ph.D. (*Bioengineering, Pediatric Surgery*)
Chih-Ming Ho, Ph.D. (*Mechanical and Aerospace Engineering*)
Jack W. Judy, Ph.D. (*Electrical Engineering*)
Karen M. Lyons, Ph.D. (*Molecular, Cell, and Developmental Biology, Orthopaedic Surgery*)
Edward R.B. McCabe, M.D., Ph.D. (*Human Genetics, Pediatrics*)
Ren Sun, Ph.D. (*Molecular and Medical Pharmacology*)
Michael A. Teitell, M.D., Ph.D. (*Pathology and Laboratory Medicine*)
Benjamin M. Wu, D.D.S., Ph.D. (*Bioengineering, Materials Science and Engineering*)

Scope and Objectives

The Biomedical Engineering Interdepartmental Program trains specially qualified engineers and scientists to work on engineering applications in either medicine or biotechnology.

Graduates apply engineering principles to current needs and contribute to future advances in

the fields of medicine and biotechnology. Fostering careers in industry or academia, the program offers students the choice of an M.S. or Ph.D. degree in eight distinct fields of biomedical engineering. In addition to selected advanced engineering courses, students are required to take specially designed biomedical engineering courses to ensure a minimal knowledge of the appropriate biological sciences. Students receive practical training via an M.S. or Ph.D. research thesis or dissertation in biomedical engineering. Faculty members have principal appointments in departments across campus and well-equipped laboratories for graduate student research projects.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Biomedical Engineering Program offers Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Biomedical Engineering.

Biomedical Engineering

Upper Division Courses

C101. Introduction to Biomedical Engineering. (4) Lecture, three hours; laboratory, three hours; outside study, six hours. Designed for physical sciences, life sciences, and engineering students. Introduction to wide scope of biomedical engineering via treatment of selected important individual topics by small team of specialists. Concurrently scheduled with course C201. Letter grading.

CM102. Basic Human Biology for Biomedical Engineers I. (4) (Same as Physiological Science CM102.) Lecture, three hours; laboratory, two hours. Preparation: human molecular biology, biochemistry, and cell biology. Not open for credit to Physiological Science majors. Broad overview of basic biological activities and organization of human body in system (organ/tissue) to system basis, with particular emphasis on molecular basis. Modeling/simulation of functional aspect of biological system included. Actual demonstration of biomedical instruments, as well as visits to biomedical facilities. Concurrently scheduled with course CM202. Letter grading.

CM103. Basic Human Biology for Biomedical Engineers II. (4) (Same as Physiological Science CM103.) Lecture, three hours; laboratory, two hours. Preparation: human molecular biology, biochemistry, and cell biology. Not open for credit to Physiological Science majors. Molecular-level understanding of human anatomy and physiology in selected organ systems (digestive, skin, musculoskeletal, endocrine, immune, urinary, reproductive). System-specific modeling/simulations (immune regulation, wound healing, muscle mechanics and energetics, acid-base balance, excretion). Functional basis of biomedical instrumentation (dialysis, artificial skin, pathogen detectors, ultrasound, birth-control drug delivery). Concurrently scheduled with course CM203. Letter grading.

CM104. Physical Chemistry of Biomacromolecules. (4) (Same as Bioengineering M104.) Lecture, three hours; discussion, two hours; outside study, seven hours. Requisites: Chemistry 20A, 20B, 30A, Life Sciences 2, 3. To understand biological materials

and design synthetic replacements, it is imperative to understand their physical chemistry. Biomacromolecules such as protein or DNA can be analyzed and characterized by applying fundamentals of polymer physical chemistry. Investigation of polymer structure and conformation, bulk and solution thermodynamics and phase behavior, polymer networks, and viscoelasticity. Application of engineering principles to problems involving biomacromolecules such as protein conformation, solvation of charged species, and separation and characterization of biomacromolecules. Concurrently scheduled with course C204. Letter grading.

CM105. Biopolymer Chemistry and Bioconjugates. (4) (Same as Bioengineering M105.) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: Chemistry 20A, 20B, 20L. Highly recommended: one organic chemistry course. Bioconjugate chemistry is science of coupling biomolecules for wide range of applications. Oligonucleotides may be coupled to one surface in gene chip, or one protein may be coupled to one polymer to enhance its stability in serum. Wide variety of bioconjugates are used in delivery of pharmaceuticals, in sensors, in medical diagnostics, and in tissue engineering. Basic concepts of chemical ligation, including choice and design of conjugate linkers depending on type of biomolecule and desired application, such as degradable versus nondegradable linkers. Presentation and discussion of design and synthesis of synthetic bioconjugates for some sample applications. Concurrently scheduled with course C205. Letter grading.

CM106. Topics in Biophysics, Channels, and Membranes. (4) (Same as Bioengineering M106.) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisites: Chemistry 20B, Life Sciences 2, 3, 4, Mathematics 33B, Physics 1C, 4AL, 4BL. Coverage in depth of physical processes associated with biological membranes and channel proteins, with specific emphasis on electrophysiology. Basic physical principles governing electrostatics in dielectric media, building on complexity to ultimately address action potentials and signal propagation in nerves. Topics include Nernst/Planck and Poisson/Boltzmann equations, Nernst potential, Donnan equilibrium, GHK equations, energy barriers in ion channels, cable equation, action potentials, Hodgkin/Huxley equations, impulse propagation, axon geometry and conduction, dendritic integration. Concurrently scheduled with course C206. Letter grading.

CM131. Nanopore Sensing. (4) (Same as Bioengineering M131.) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: Bioengineering 100, 120, Life Sciences 2, 3, Physics 1A, 1B, 1C. Analysis of sensors based on measurements of fluctuating ionic conductance through artificial or protein nanopores. Physics of pore conductance. Applications to single molecule detection and DNA sequencing. Review of current literature and technological applications. History and instrumentation of resistive pulse sensing, theory and instrumentation of electrical measurements in electrolytes, nanopore fabrication, ionic conductance through pores and GHK equation, patch clamp and single channel measurements and instrumentation, noise issues, protein engineering, molecular sensing, DNA sequencing, membrane engineering, and future directions of field. Concurrently scheduled with course C231. Letter grading.

CM140. Introduction to Biomechanics. (4) (Same as Mechanical and Aerospace Engineering CM140.) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: Mechanical and Aerospace Engineering 101, 102, 156A. Introduction to mechanical functions of human body; skeletal adaptations to optimize load transfer, mobility, and function. Dynamics and kinematics. Fluid mechanics applications. Heat and mass transfer. Power generation. Laboratory simulations and tests. Concurrently scheduled with course CM240. Letter grading.

CM145. Molecular Biotechnology for Engineers. (4) (Same as Chemical Engineering CM145.) Lecture, four hours; discussion, one hour; outside study, eight hours. Selected topics in molecular biology that form foundation of biotechnology and biomedical industry

today. Topics include recombinant DNA technology, molecular research tools, manipulation of gene expression, directed mutagenesis and protein engineering, DNA-based diagnostics and DNA microarrays, antibody and protein-based diagnostics, genomics and bioinformatics, isolation of human genes, gene therapy, and tissue engineering. Concurrently scheduled with course CM245. Letter grading.

CM150. Introduction to Micromachining and Microelectromechanical Systems (MEMS). (4) (Same as Electrical Engineering CM150 and Mechanical and Aerospace Engineering CM180.) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: Chemistry 20A, 20L, Physics 1A, 1B, 1C, 4AL, 4BL. Corequisite: course CM150L. Introduction to micromachining technologies and microelectromechanical systems (MEMS). Methods of micromachining and how these methods can be used to produce variety of MEMS, including microstructures, micro-sensors, and microactuators. Students design microfabrication processes capable of achieving desired MEMS device. Concurrently scheduled with course CM250A. Letter grading.

CM150L. Introduction to Micromachining and Microelectromechanical Systems (MEMS) Laboratory. (2) (Same as Electrical Engineering CM150L and Mechanical and Aerospace Engineering CM180L.) Lecture, one hour; laboratory, four hours; outside study, one hour. Requisites: Chemistry 20A, 20L, Physics 1A, 1B, 1C, 4AL, 4BL. Corequisite: course CM150. Hands-on introduction to micromachining technologies and microelectromechanical systems (MEMS) laboratory. Methods of micromachining and how these methods can be used to produce variety of MEMS, including microstructures, micro-sensors, and microactuators. Students go through process of fabricating MEMS device. Concurrently scheduled with course CM250L. Letter grading.

C170. Energy-Tissue Interactions. (4) Lecture, three hours; outside study, nine hours. Requisites: Electrical Engineering 172, 175, Life Sciences 3, Physics 17. Corequisite: course C170L. Introduction to therapeutic and diagnostic use of energy delivery devices in medical and dental applications, with emphasis on understanding fundamental mechanisms underlying various types of energy-tissue interactions. Concurrently scheduled with course C270. Letter grading.

C170L. Introduction to Techniques in Studying Laser-Tissue Interaction. (2) Laboratory, four hours; outside study, two hours. Corequisite: course C170. Introduction to simulation and experimental techniques used in studying laser-tissue interactions. Topics include computer simulations of light propagation in tissue, measuring absorption spectra of tissue/tissue phantoms, making tissue phantoms, determination of optical properties of different tissues, techniques of temperature distribution measurements. Concurrently scheduled with course C270L. Letter grading.

C171. Laser-Tissue Interaction II: Biologic Spectroscopy. (4) Lecture, four hours; outside study, eight hours. Requisite: course C170. Designed for physical sciences, life sciences, and engineering majors. Introduction to optical spectroscopy principles, design of spectroscopic measurement devices, optical properties of tissues, and fluorescence spectroscopy biological media. Concurrently scheduled with course C271. Letter grading.

CM172. Design of Minimally Invasive Surgical Tools. (4) (Same as Bioengineering M172.) Lecture, three hours; discussion, two hours; outside study, seven hours. Requisites: Chemistry 30B, Life Sciences 2, 3, Mathematics 32A. Introduction to design principles and engineering concepts used in design and manufacture of tools for minimally invasive surgery. Coverage of FDA regulatory policy and surgical procedures. Topics include optical devices, endoscopes and laparoscopes, biopsy devices, laparoscopic tools, cardiovascular and interventional radiology devices, orthopedic instrumentation, and integration of devices with therapy. Examination of complex process of tool design, fabrication, testing, and validation. Prepara-

tion of drawings and consideration of development of new and novel devices. Concurrently scheduled with course C272. Letter grading.

CM180. Introduction to Biomaterials. (4) (Same as Materials Science CM180.) Lecture, three hours; discussion, two hours; outside study, seven hours. Requisites: Chemistry 20A, 20B, and 20L, or Materials Science 104. Engineering materials used in medicine and dentistry for repair and/or restoration of damaged natural tissues. Topics include relationships between material properties, suitability to task, surface chemistry, processing and treatment methods, and biocompatibility. Concurrently scheduled with course CM280. Letter grading.

C181. Biomaterials-Tissue Interactions. (4) Lecture, three hours; outside study, nine hours. Requisite: course CM180. In-depth exploration of host cellular response to biomaterials: vascular response, interface, and clotting, biocompatibility, animal models, inflammation, infection, extracellular matrix, cell adhesion, and role of mechanical forces. Concurrently scheduled with course C281. Letter grading.

CM183. Targeted Drug Delivery and Controlled Drug Release. (4) (Same as Bioengineering M183.) Lecture, three hours; discussion, two hours; outside study, seven hours. Requisites: Chemistry 20A, 20B, 20L. New therapeutics require comprehensive understanding of modern biology, physiology, biomaterials, and engineering. Targeted delivery of genes and drugs and their controlled release are important in treatment of challenging diseases and relevant to tissue engineering and regenerative medicine. Drug pharmacodynamics and clinical pharmacokinetics. Application of engineering principles (diffusion, transport, kinetics) to problems in drug formulation and delivery to establish rationale for design and development of novel drug delivery systems that can provide spatial and temporal control of drug release. Introduction to biomaterials with specialized structural and interfacial properties. Exploration of both chemistry of materials and physical presentation of devices and compounds used in delivery and release. Concurrently scheduled with course C283. Letter grading.

M184. Introduction to Computational and Systems Biology. (2) (Same as Computational and Systems Biology M184 and Computer Science M184.) Lecture, two hours; outside study, four hours. Requisites: Computer Science 31 (or Program in Computing 10A), Mathematics 31A, 31B. Survey course designed to introduce students to computational and systems modeling and computation in biology and medicine, providing motivation, flavor, culture, and cutting-edge contributions in computational biosciences and aiming for more informed basis for focused studies by students with computational and systems biology interests. Presentations by individual UCLA researchers discussing their active computational and systems biology research. P/NP grading.

C185. Introduction to Tissue Engineering. (4) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisites: course CM102 or CM202, Chemistry 20A, 20B, 20L. Tissue engineering applies principles of biology and physical sciences with engineering approach to regenerate tissues and organs. Guiding principles for proper selection of three basic components for tissue engineering: cells, scaffolds, and molecular signals. Concurrently scheduled with course C285. Letter grading.

CM186B. Computational Systems Biology: Modeling and Simulation of Biological Systems. (5) (Same as Computational and Systems Biology M186B and Computer Science CM186B.) Lecture, four hours; laboratory, three hours; outside study, eight hours. Corequisite: Electrical Engineering 102. Dynamic biosystems modeling and computer simulation methods for studying biological/biomedical processes and systems at multiple levels of organization. Control system, multicompartmental, predator-prey, pharmacokinetic (PK), pharmacodynamic (PD), and other structural modeling methods applied to life sciences problems at molecular, cellular (biochemical pathways/networks), organ, and organismic levels. Both theory- and data-driven modeling, with focus on

translating biomodeling goals and data into mathematics models and implementing them for simulation and analysis. Basics of numerical simulation algorithms, with modeling software exercises in class and PC laboratory assignments. Concurrently scheduled with course CM286B. Letter grading.

CM186C. Biomodeling Research and Research Communication Workshop. (2 to 4) (Formerly numbered CM186L.) (Same as Computational and Systems Biology M186C and Computer Science CM186C.) Lecture, one hour; discussion, two hours; laboratory, one hour; outside study, eight hours. Requisite: course CM186B. Closely directed, interactive, and real research experience in active quantitative systems biology research laboratory. Direction on how to focus on topics of current interest in scientific community, appropriate to student interests and capabilities. Critiques of oral presentations and written progress reports explain how to proceed with search for research results. Major emphasis on effective research reporting, both oral and written. Concurrently scheduled with course CM286C. Letter grading.

C187. Applied Tissue Engineering: Clinical and Industrial Perspectives. (4) Lecture, three hours; discussion, two hours; outside study, seven hours. Requisites: course CM102, Chemistry 20A, 20B, 20L, Life Sciences 1 or 2. Overview of central topics of tissue engineering, with focus on how to build artificial tissues into regulated clinically viable products. Topics include biomaterials selection, cell source, delivery methods, FDA approval processes, and physical/chemical and biological testing. Case studies include skin and artificial skin, bone and cartilage, blood vessels, neurotissue engineering, and liver, kidney, and other organs. Clinical and industrial perspectives of tissue engineering products. Manufacturing constraints, clinical limitations, and regulatory challenges in design and development of tissue-engineering devices. Concurrently scheduled with course C287. Letter grading.

188. Special Courses in Biomedical Engineering. (4) Lecture, four hours; outside study, eight hours. Special topics in biomedical engineering for undergraduate students taught on experimental or temporary basis, such as those taught by resident and visiting faculty members. May be repeated for credit. Letter grading.

Graduate Courses

C201. Introduction to Biomedical Engineering. (4) Lecture, three hours; laboratory, three hours; outside study, six hours. Designed for physical sciences, life sciences, and engineering students. Introduction to wide scope of biomedical engineering via treatment of selected important individual topics by small team of specialists. Concurrently scheduled with course C101. Letter grading.

CM202. Basic Human Biology for Biomedical Engineers I. (4) (Same as Physiological Science CM204.) Lecture, three hours; laboratory, two hours. Preparation: human molecular biology, biochemistry, and cell biology. Not open for credit to Physiological Science majors. Broad overview of basic biological activities and organization of human body in system (organ/tissue) to system basis, with particular emphasis on molecular basis. Modeling/simulation of functional aspect of biological system included. Actual demonstration of biomedical instruments, as well as visits to biomedical facilities. Concurrently scheduled with course CM102. Letter grading.

CM203. Basic Human Biology for Biomedical Engineers II. (4) (Same as Physiological Science CM203.) Lecture, three hours; laboratory, two hours. Preparation: human molecular biology, biochemistry, and cell biology. Not open for credit to Physiological Science majors. Molecular-level understanding of human anatomy and physiology in selected organ systems (digestive, skin, musculoskeletal, endocrine, immune, urinary, reproductive). System-specific modeling/simulations (immune regulation, wound healing, muscle mechanics and energetics, acid-base balance, excretion). Functional basis of biomedical in-

strumentation (dialysis, artificial skin, pathogen detectors, ultrasound, birth-control drug delivery). Concurrently scheduled with course CM103. Letter grading.

C204. Physical Chemistry of Biomacromolecules. (4) Lecture, three hours; discussion, two hours; outside study, seven hours. Requisites: Chemistry 20A, 20B, 30A, Life Sciences 2, 3. To understand biological materials and design synthetic replacements, it is imperative to understand their physical chemistry. Biomacromolecules such as protein or DNA can be analyzed and characterized by applying fundamentals of polymer physical chemistry. Investigation of polymer structure and conformation, bulk and solution thermodynamics and phase behavior, polymer networks, and viscoelasticity. Application of engineering principles to problems involving biomacromolecules such as protein conformation, solvation of charged species, and separation and characterization of biomacromolecules. Concurrently scheduled with course CM104. Letter grading.

C205. Biopolymer Chemistry and Bioconjugates. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: Chemistry 20A, 20B, 20L. Highly recommended: one organic chemistry course. Bioconjugate chemistry is science of coupling biomolecules for wide range of applications. Oligonucleotides may be coupled to one surface in gene chip, or one protein may be coupled to one polymer to enhance its stability in serum. Wide variety of bioconjugates are used in delivery of pharmaceuticals, in sensors, in medical diagnostics, and in tissue engineering. Basic concepts of chemical ligation, including choice and design of conjugate linkers depending on type of biomolecule and desired application, such as degradable versus nondegradable linkers. Presentation and discussion of design and synthesis of synthetic bioconjugates for some sample applications. Concurrently scheduled with course CM105. Letter grading.

C206. Topics in Biophysics, Channels, and Membranes. (4) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisites: Chemistry 20B, Life Sciences 2, 3, 4, Mathematics 33B, Physics 1C, 4AL, 4BL. Coverage in depth of physical processes associated with biological membranes and channel proteins, with specific emphasis on electrophysiology. Basic physical principles governing electrostatics in dielectric media, building on complexity to ultimately address action potentials and signal propagation in nerves. Topics include Nernst/Planck and Poisson/Boltzmann equations, Nernst potential, Donnan equilibrium, GHK equations, energy barriers in ion channels, cable equation, action potentials, Hodgkin/Huxley equations, impulse propagation, axon geometry and conduction, dendritic integration. Concurrently scheduled with course CM106. Letter grading.

M214A. Digital Speech Processing. (4) (Same as Electrical Engineering M214A.) Lecture, three hours; laboratory, two hours; outside study, seven hours. Requisite: Electrical Engineering 113. Theory and applications of digital processing of speech signals. Mathematical models of human speech production and perception mechanisms, speech analysis/synthesis. Techniques include linear prediction, filter-bank models, and homomorphic filtering. Applications to speech synthesis, automatic recognition, and hearing aids. Letter grading.

M215. Biochemical Reaction Engineering. (4) (Same as Chemical Engineering CM215.) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: Chemical Engineering 101C. Use of previously learned concepts of biophysical chemistry, thermodynamics, transport phenomena, and reaction kinetics to develop tools needed for technical design and economic analysis of biological reactors. Letter grading.

M217. Biomedical Imaging. (4) (Same as Electrical Engineering M217.) Lecture, three hours; outside study, nine hours. Requisite: Electrical Engineering 114 or 211A. Optical imaging modalities in biomedicine. Other nonoptical imaging modalities discussed briefly for comparison purposes. Letter grading.

M219. Principles and Applications of Magnetic Resonance Imaging. (4) (Same as Biomedical Physics M219.) Lecture, three hours; discussion, one hour. Basic principles of magnetic resonance (MR), physics, and image formation. Emphasis on hardware, Bloch equations, analytic expressions, image contrast mechanisms, spin and gradient echoes, Fourier transform imaging methods, structure of pulse sequences, and various scanning parameters. Introduction to advanced techniques in rapid imaging, quantitative imaging, and spectroscopy. Letter grading.

220. Introduction to Medical Informatics. (2) Lecture, two hours; outside study, four hours. Designed for graduate students. Introduction to research topics and issues in medical informatics for students new to field. Definition of this emerging field of study, current research efforts, and future directions in research. Key issues in medical informatics to expose students to different application domains, such as information system architectures, data and process modeling, information extraction and representations, information retrieval and visualization, health services research, telemedicine. Emphasis on current research endeavors and applications. S/U grading.

221. Human Anatomy and Physiology for Medical and Imaging Informatics. (4) Lecture, four hours; outside study, eight hours. Designed for graduate students. Introduction to basic human anatomy and physiology, with particular emphasis on understanding and visualization of anatomy and physiology through medical images. Topics relevant to acquisition, representation, and dissemination of anatomical knowledge in computerized clinical applications. Topics include chest, cardiac, neurology, gastrointestinal/genitourinary, endocrine, and musculoskeletal systems. Introduction to basic imaging physics (magnetic resonance, computed tomography, ultrasound, computed radiography) to provide context for imaging modalities predominantly used to view human anatomy. Geared toward nonphysicians who require more formal understanding of human anatomy/physiology. Letter grading.

223A-223B-223C. Programming Laboratories for Medical and Imaging Informatics I, II, III. (4-4-4) Lecture, two hours; laboratory, two hours; outside study, eight hours. Designed for graduate students. Programming laboratories to support coursework in other medical and imaging informatics core curriculum courses. Exposure to programming concepts for medical applications, with focus on basic abstraction techniques used in image processing and medical information system infrastructures. Letter grading.

223A. Requisites: Computer Science 31, 32, Program in Computing 20A, 20B. Course 223A is requisite to 223B, which is requisite to 223C. Integrated with topics presented in course M227 to reinforce concepts presented with practical experience. Projects focus on understanding medical networking issues and implementation of basic protocols for healthcare environment, with emphasis on use of DICOM. Introduction to basic tools and methods used within informatics.

223B. Requisite: course 223A. Integrated with topics presented in courses 223A, M227, and M228 to reinforce concepts presented with practical experience. Projects focus on medical image manipulation and decision support systems. **223C.** Requisite: course 223B. Exposure to programming concepts for medical applications, with focus on basic abstraction techniques used to extract meaningful features from medical text and imaging data and visualize results. Integrated with topics presented in courses 224B and M226 to reinforce concepts presented with practical experience. Projects focus on medical information retrieval, knowledge representation, and visualization.

224A. Physics and Informatics of Medical Imaging. (4) Lecture, four hours; laboratory, eight hours. Requisites: Mathematics 33A, 33B. Designed for graduate students. Introduction to principles of medical imaging and imaging informatics for nonphysicists. Overview of core imaging modalities: X ray, computed tomography (CT), and magnetic resonance (MR). Topics include signal generation, localization, and quantization. Image representation and analysis techniques such as Markov random fields, spatial charac-

terization (atlases), denoising, energy representations, and clinical imaging workstation design. Provides basic understanding of issues related to basic medical image acquisition and analysis. Current research efforts with focus on clinical applications and new types of information made available through these modalities. Letter grading.

224B. Advances in Imaging Informatics. (4) Lecture, four hours; outside study, eight hours. Requisite: course 224A. Overview of information retrieval techniques in medical imaging and informatics-based applications of imaging, with focus on various advances in field. Introduction to core concepts in information retrieval (IR), reviewing seminal papers on evaluating IR systems and their use in medicine (e.g., teaching files, case-based retrieval, etc.). Medical content-based image retrieval (CBIR) as motivating application, with examination of core works in this area. Techniques to realize medical CBIR, including image feature extraction and processing, feature representation, classification schemes (via machine learning), image indexing, image querying methods, and visualization of images (e.g., perception, presentation). Discussion of more advanced methods now being pursued by researchers. Letter grading.

M225. Bioseparations and Bioprocess Engineering. (4) (Same as Chemical Engineering CM225.) Lecture, four hours; discussion, one hour; outside study, seven hours. Corequisite: Chemical Engineering 101C. Separation strategies, unit operations, and economic factors used to design processes for isolating and purifying materials like whole cells, enzymes, food additives, or pharmaceuticals that are products of biological reactors. Letter grading.

M226. Medical Knowledge Representation. (4) (Formerly numbered 226.) (Same as Information Studies M253.) Seminar, four hours; outside study, eight hours. Designed for graduate students. Issues related to medical knowledge representation and its application in healthcare processes. Topics include data structures used for representing knowledge (conceptual graphs, frame-based models), different data models for representing spatio-temporal information, rule-based implementations, current statistical methods for discovery of knowledge (data mining, statistical classifiers, and hierarchical classification), and basic information retrieval. Review of work in constructing ontologies, with focus on problems in implementation and definition. Common medical ontologies, coding schemes, and standardized indices/terminologies (SNOMED, UMLS). Letter grading.

M227. Medical Information Infrastructures and Internet Technologies. (4) (Formerly numbered 227.) (Same as Information Studies M254.) Lecture, four hours; outside study, eight hours. Designed for graduate students. Introduction to networking, communications, and information infrastructures in medical environment. Exposure to basic concepts related to networking at several levels: low-level (TCP/IP, services), medium-level (network topologies), and high-level (distributed computing, Web-based services) implementations. Commonly used medical communication protocols (HL7, DICOM) and current medical information systems (HIS, RIS, PACS). Advances in networking, such as wireless health systems, peer-to-peer topologies, grid/cloud computing. Introduction to security and encryption in networked environments. Letter grading.

M228. Medical Decision Making. (4) (Formerly numbered 228.) (Same as Information Studies M255.) Lecture, four hours; outside study, eight hours. Designed for graduate students. Overview of issues related to medical decision making. Introduction to concept of evidence-based medicine and decision processes related to process of care and outcomes. Basic probability and statistics to understand research results and evaluations, and algorithmic methods for decision-making processes (Bayes theorem, decision trees). Study design, hypothesis testing, and estimation. Focus on technical advances in medical decision support systems and expert systems, with review of classic and current research. Introduction to

common statistical and decision-making software packages to familiarize students with current tools. Letter grading.

C231. Nanopore Sensing. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: Bioengineering 100, 120, Life Sciences 2, 3, Physics 1A, 1B, 1C. Analysis of sensors based on measurements of fluctuating ionic conductance through artificial or protein nanopores. Physics of pore conductance. Applications to single molecule detection and DNA sequencing. Review of current literature and technological applications. History and instrumentation of resistive pulse sensing, theory and instrumentation of electrical measurements in electrolytes, nanopore fabrication, ionic conductance through pores and GHK equation, patch clamp and single channel measurements and instrumentation, noise issues, protein engineering, molecular sensing, DNA sequencing, membrane engineering, and future directions of field. Concurrently scheduled with course CM131. Letter grading.

CM240. Introduction to Biomechanics. (4) (Same as Mechanical and Aerospace Engineering CM240.) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: Mechanical and Aerospace Engineering 101, 102, 156A. Introduction to mechanical functions of human body; skeletal adaptations to optimize load transfer, mobility, and function. Dynamics and kinematics. Fluid mechanics applications. Heat and mass transfer. Power generation. Laboratory simulations and tests. Concurrently scheduled with course CM140. Letter grading.

CM245. Molecular Biotechnology for Engineers. (4) (Same as Chemical Engineering CM245.) Lecture, four hours; discussion, one hour; outside study, eight hours. Selected topics in molecular biology that form foundation of biotechnology and biomedical industry today. Topics include recombinant DNA technology, molecular research tools, manipulation of gene expression, directed mutagenesis and protein engineering, DNA-based diagnostics and DNA microarrays, antibody and protein-based diagnostics, genomics and bioinformatics, isolation of human genes, gene therapy, and tissue engineering. Concurrently scheduled with course CM145. Letter grading.

M248. Introduction to Biological Imaging. (4) (Same as Biomedical Physics M248 and Pharmacology M248.) Lecture, three hours; laboratory, one hour; outside study, seven hours. Exploration of role of biological imaging in modern biology and medicine, including imaging physics, instrumentation, image processing, and applications of imaging for range of modalities. Practical experience provided through series of imaging laboratories. Letter grading.

CM250A. Introduction to Micromachining and Microelectromechanical Systems (MEMS). (4) (Same as Electrical Engineering CM250A and Mechanical and Aerospace Engineering CM280A.) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: Chemistry 20A, 20L, Physics 1A, 1B, 1C, 4AL, 4BL. Corequisite: course CM250L. Introduction to micromachining technologies and microelectromechanical systems (MEMS). Methods of micromachining and how these methods can be used to produce variety of MEMS, including microstructures, microsensors, and microactuators. Students design microfabrication processes capable of achieving desired MEMS device. Concurrently scheduled with course CM150. Letter grading.

M250B. Microelectromechanical Systems (MEMS) Fabrication. (4) (Same as Electrical Engineering M250B and Mechanical and Aerospace Engineering M280B.) Lecture, three hours; discussion, one hour; outside study, eight hours. Enforced requisite: course CM150 or CM250A. Advanced discussion of micromachining processes used to construct MEMS. Coverage of many lithographic, deposition, and etching processes, as well as their combination in process integration. Materials issues such as chemical resistance, corrosion, mechanical properties, and residual/intrinsic stress. Letter grading.

CM250L. Introduction to Micromachining and Microelectromechanical Systems (MEMS) Laboratory. (2) (Same as Electrical Engineering CM250L and Mechanical and Aerospace Engineering CM280L.) Lecture, one hour; laboratory, four hours; outside study, one hour. Requisites: Chemistry 20A, 20L, Physics 1A, 1B, 1C, 4AL, 4BL. Corequisite: course CM250A. Hands-on introduction to micromachining technologies and microelectromechanical systems (MEMS) laboratory. Methods of micromachining and how these methods can be used to produce variety of MEMS, including microstructures, microsensors, and microactuators. Students go through process of fabricating MEMS device. Concurrently scheduled with course CM150L. Letter grading.

M252. Microelectromechanical Systems (MEMS) Device Physics and Design. (4) (Formerly numbered M250B.) (Same as Electrical Engineering M252 and Mechanical and Aerospace Engineering M282.) Lecture, four hours; outside study, eight hours. Introduction to MEMS design. Design methods, design rules, sensing and actuation mechanisms, microsensors, and microactuators. Designing MEMS to be produced with both foundry and nonfoundry processes. Computer-aided design for MEMS. Design project required. Letter grading.

257. Engineering Mechanics of Motor Proteins and Cytoskeleton. (4) Lecture, four hours; outside study, eight hours. Requisites: Mathematics 32A, 32B, 33A, 33B, Life Sciences 3, Physics 1A, 1B, 1C. Introduction to physics of motor proteins and cytoskeleton: mass, stiffness and damping of proteins, thermal forces and diffusion, chemical forces, polymer mechanics, structures of cytoskeletal filaments, mechanics of cytoskeleton, polymerization of cytoskeletal filaments, force generation by cytoskeletal filaments, active polymerization, motor protein structure and operation. Emphasis on engineering perspective. Letter grading.

M260. Neuroengineering. (4) (Same as Electrical Engineering M255 and Neuroscience M206.) Lecture, four hours; laboratory, three hours; outside study, five hours. Requisites: Mathematics 32A, Physics 1B or 6B. Introduction to principles and technologies of bioelectricity and neural signal recording, processing, and stimulation. Topics include bioelectricity, electrophysiology (action potentials, local field potentials, EEG, ECG), intracellular and extracellular recording, microelectrode technology, neural signal processing (neural signal frequency bands, filtering, spike detection, spike sorting, stimulation artifact removal), brain-computer interfaces, deep-brain stimulation, and prosthetics. Letter grading.

M261A-M261B-M261C. Evaluation of Research Literature in Neuroengineering. (2-2-2) (Same as Electrical Engineering M256A-M256B-M256C and Neuroscience M212A-M212B-M212C.) Discussion, two hours; outside study, four hours. Critical discussion and analysis of current literature related to neuroengineering research. S/U grading.

M263. Neuroanatomy: Structure and Function of Nervous System. (4) (Same as Neuroscience M203.) Lecture, three hours; discussion/laboratory, three hours. Anatomy of central and peripheral nervous system at cellular histological and regional systems level, with emphasis on contemporary experimental approaches to morphological study of nervous system in discussions of circuitry and neurochemical anatomy of major brain regions. Consideration of representative vertebrate and invertebrate nervous systems. Letter grading.

C270. Energy-Tissue Interactions. (4) Lecture, three hours; outside study, nine hours. Requisites: Electrical Engineering 172, 175, Life Sciences 3, Physics 17. Introduction to therapeutic and diagnostic use of energy delivery devices in medical and dental applications, with emphasis on understanding fundamental mechanisms underlying various types of energy-tissue interactions. Concurrently scheduled with course C170. Letter grading.

C270L. Introduction to Techniques in Studying Laser-Tissue Interaction. (2) Laboratory, four hours; outside study, two hours. Corequisite: course C270. Introduction to simulation and experimental techniques used in studying laser-tissue interactions. Topics include computer simulations of light propagation in tissue, measuring absorption spectra of tissue/tissue phantoms, making tissue phantoms, determination of optical properties of different tissues, techniques of temperature distribution measurements. Concurrently scheduled with course C170L. Letter grading.

C271. Laser-Tissue Interaction II: Biologic Spectroscopy. (4) Lecture, four hours; outside study, eight hours. Requisite: course C270. Designed for physical sciences, life sciences, and engineering majors. Introduction to optical spectroscopy principles, design of spectroscopic measurement devices, optical properties of tissues, and fluorescence spectroscopy biologic media. Concurrently scheduled with course C171. Letter grading.

C272. Design of Minimally Invasive Surgical Tools. (4) Lecture, three hours; discussion, two hours; outside study, seven hours. Requisites: Chemistry 30B, Life Sciences 2, 3, Mathematics 32A. Introduction to design principles and engineering concepts used in design and manufacture of tools for minimally invasive surgery. Coverage of FDA regulatory policy and surgical procedures. Topics include optical devices, endoscopes and laparoscopes, biopsy devices, laparoscopic tools, cardiovascular and interventional radiology devices, orthopedic instrumentation, and integration of devices with therapy. Examination of complex process of tool design, fabrication, testing, and validation. Preparation of drawings and consideration of development of new and novel devices. Concurrently scheduled with course CM172. Letter grading.

CM280. Introduction to Biomaterials. (4) (Same as Materials Science CM280.) Lecture, three hours; discussion, two hours; outside study, seven hours. Requisites: Chemistry 20A, 20B, and 20L, or Materials Science 104. Engineering materials used in medicine and dentistry for repair and/or restoration of damaged natural tissues. Topics include relationships between material properties, suitability to task, surface chemistry, processing and treatment methods, and biocompatibility. Concurrently scheduled with course CM180. Letter grading.

C281. Biomaterials-Tissue Interactions. (4) Lecture, three hours; outside study, nine hours. Requisite: course CM280. In-depth exploration of host cellular response to biomaterials: vascular response, interface, and clotting, biocompatibility, animal models, inflammation, infection, extracellular matrix, cell adhesion, and role of mechanical forces. Concurrently scheduled with course C181. Letter grading.

282. Biomaterial Interfaces. (4) Lecture, four hours; laboratory, eight hours. Requisite: course CM180 or CM280. Function, utility, and biocompatibility of biomaterials depend critically on their surface and interfacial properties. Discussion of morphology and composition of biomaterials and nanoscales, mesoscales, and macroscales, techniques for characterizing structure and properties of biomaterial interfaces, and methods for designing and fabricating biomaterials with prescribed structure and properties in vitro and in vivo. Letter grading.

C283. Targeted Drug Delivery and Controlled Drug Release. (4) Lecture, three hours; discussion, two hours; outside study, seven hours. Requisites: Chemistry 20A, 20B, 20L. New therapeutics require comprehensive understanding of modern biology, physiology, biomaterials, and engineering. Targeted delivery of genes and drugs and their controlled release are important in treatment of challenging diseases and relevant to tissue engineering and regenerative medicine. Drug pharmacodynamics and clinical pharmacokinetics. Application of engineering principles (diffusion, transport, kinetics) to problems in drug formulation and delivery to establish rationale for design and development of novel drug delivery systems that can provide spatial and temporal control of drug release. Introduction to biomaterials with specialized structural and interfacial properties. Exploration of both chemis-

try of materials and physical presentation of devices and compounds used in delivery and release. Concurrently scheduled with course CM183. Letter grading.

M284. Functional Neuroimaging: Techniques and Applications. (3) (Same as Biomedical Physics M285, Neuroscience M285, Psychiatry M285, and Psychology M278.) Lecture, three hours. In-depth examination of activation imaging, including MRI and electrophysiological methods, data acquisition and analysis, experimental design, and results obtained thus far in human systems. Strong focus on understanding technologies, how to design activation imaging paradigms, and how to interpret results. Laboratory visits and design and implementation of functional MRI experiment. S/U or letter grading.

C285. Introduction to Tissue Engineering. (4) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisites: course CM102 or CM202, Chemistry 20A, 20B, 20L. Tissue engineering applies principles of biology and physical sciences with engineering approach to regenerate tissues and organs. Guiding principles for proper selection of three basic components for tissue engineering: cells, scaffolds, and molecular signals. Concurrently scheduled with course C185. Letter grading.

CM286B. Computational Systems Biology: Modeling and Simulation of Biological Systems. (5) (Same as Computer Science CM286B.) Lecture, four hours; laboratory, three hours; outside study, eight hours. Corequisite: Electrical Engineering 102. Dynamic biosystems modeling and computer simulation methods for studying biological/biomedical processes and systems at multiple levels of organization. Control system, multicompartmental, predator-prey, pharmacokinetic (PK), pharmacodynamic (PD), and other structural modeling methods applied to life sciences problems at molecular, cellular (biochemical pathways/networks), organ, and organismic levels. Both theory- and data-driven modeling, with focus on translating biomodeling goals and data into mathematics models and implementing them for simulation and analysis. Basics of numerical simulation algorithms, with modeling software exercises in class and PC laboratory assignments. Concurrently scheduled with course CM186B. Letter grading.

CM286C. Biomodeling Research and Research Communication Workshop. (2 to 4) (Formerly numbered CM286L.) (Same as Computer Science CM286C.) Lecture, one hour; discussion, two hours; laboratory, one hour; outside study, eight hours. Requisite: course CM286B. Closely directed, interactive, and real research experience in active quantitative systems biology research laboratory. Direction on how to focus on topics of current interest in scientific community, appropriate to student interests and capabilities. Critiques of oral presentations and written progress reports explain how to proceed with search for research results. Major emphasis on effective research reporting, both oral and written. Concurrently scheduled with course CM186C. Letter grading.

C287. Applied Tissue Engineering: Clinical and Industrial Perspectives. (4) Lecture, three hours; discussion, two hours; outside study, seven hours. Requisites: course CM202, Chemistry 20A, 20B, 20L, Life Sciences 1 or 2. Overview of central topics of tissue engineering, with focus on how to build artificial tissues into regulated clinically viable products. Topics include biomaterials selection, cell source, delivery methods, FDA approval processes, and physical/chemical and biological testing. Case studies include skin and artificial skin, bone and cartilage, blood vessels, neurotissue engineering, and liver, kidney, and other organs. Clinical and industrial perspectives of tissue engineering products. Manufacturing constraints, clinical limitations, and regulatory challenges in design and development of tissue-engineering devices. Concurrently scheduled with course C187. Letter grading.

295A-295Z. Seminars: Research Topics in Biomedical Engineering and Bioengineering. (1 to 4) Seminar, one to four hours. Limited to biomedical engineering graduate students. Advanced study and analysis of current topics in bioengineering. Discus-

sion of current research and literature in research specialty of faculty member teaching course. Student presentation of projects in research specialty. May be repeated for credit. S/U grading:

295A. Biomaterial Research.

295B. Biomaterials and Tissue Engineering Research.

295C. Minimally Invasive and Laser Research.

295D. Hybrid Device Research.

295E. Molecular Cell Bioengineering Research.

295F. Biopolymer Materials and Chemistry.

M296A. Advanced Modeling Methodology for Dynamic Biomedical Systems. (4) (Same as Computer Science M296A and Medicine M270C.) Lecture, four hours; outside study, eight hours. Prerequisite: Electrical Engineering 141 or 142 or Mathematics 115A or Mechanical and Aerospace Engineering 171A. Development of dynamic systems modeling methodology for physiological, biomedical, pharmacological, chemical, and related systems. Control system, multicompartmental, noncompartmental, and input/output models, linear and nonlinear. Emphasis on model applications, limitations, and relevance in biomedical sciences and other limited data environments. Problem solving in PC laboratory. Letter grading.

M296B. Optimal Parameter Estimation and Experiment Design for Biomedical Systems. (4) (Same as Biomathematics M270, Computer Science M296B, and Medicine M270D.) Lecture, four hours; outside study, eight hours. Prerequisite: course M296A or Biomathematics 220. Estimation methodology and model parameter estimation algorithms for fitting dynamic system models to biomedical data. Model discrimination methods. Theory and algorithms for designing optimal experiments for developing and quantifying models, with special focus on optimal sampling schedule design for kinetic models. Exploration of PC software for model building and optimal experiment design via applications in physiology and pharmacology. Letter grading.

M296C. Advanced Topics and Research in Biomedical Systems Modeling and Computing. (4) (Same as Computer Science M296C and Medicine M270E.) Lecture, four hours; outside study, eight hours. Prerequisite: course M296A. Recommended: course M296B. Research techniques and experience on special topics involving models, modeling methods, and model/computing in biological and medical sciences. Review and critique of literature. Research problem searching and formulation. Approaches to solutions. Individual M.S.- and Ph.D.-level project training. Letter grading.

M296D. Introduction to Computational Cardiology. (4) (Same as Computer Science M296D.) Lecture, four hours; outside study, eight hours. Prerequisite: course CM186B. Introduction to mathematical modeling and computer simulation of cardiac electrophysiological process. Ionic models of action potential (AP). Theory of AP propagation in one-dimensional and two-dimensional cardiac tissue. Simulation on sequential and parallel supercomputers, choice of numerical algorithms, to optimize accuracy and to provide computational stability. Letter grading.

298. Special Studies in Biomedical Engineering. (4) Lecture, four hours; outside study, eight hours. Study of selected topics in biomedical engineering taught by resident and visiting faculty members. Letter grading.

299. Seminar: Biomedical Engineering Topics. (2) Seminar, two hours; outside study, four hours. Designed for graduate biomedical engineering students. Seminar by leading academic and industrial biomedical engineers from UCLA, other universities, and biomedical engineering companies such as Baxter, Amgen, Medtronic, and Guidant on development and application of recent technological advances in discipline. Exploration of cutting-edge developments and challenges in wound healing models, stem cell biology, angiogenesis, signal transduction, gene therapy, cDNA microarray technology, bioartificial cultivation, nano- and micro-hybrid devices, scaffold engineering, and bioinformatics. S/U grading.

375. Teaching Apprentice Practicum. (4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Teaching Assistant Training Seminar. (2) Seminar, two hours; outside study, four hours. Limited to graduate biomedical engineering students. Required of all departmental teaching assistants. May be taken concurrently while holding TA appointment. Seminar on communicating bioengineering and biomedical engineering principles, concepts, and methods; teaching assistant preparation, organization, and presentation of material, including use of visual aids, grading, advising, and rapport with students. S/U grading.

596. Directed Individual or Tutorial Studies. (2 to 8) Tutorial, to be arranged. Limited to graduate biomedical engineering students. Petition forms to request enrollment may be obtained from program office. Supervised investigation of advanced technical problems. S/U grading.

597A. Preparation for M.S. Comprehensive Examination. (2 to 12) Tutorial, to be arranged. Limited to graduate biomedical engineering students. Reading and preparation for M.S. comprehensive examination. S/U grading.

597B. Preparation for Ph.D. Preliminary Examinations. (2 to 16) Tutorial, to be arranged. Limited to graduate biomedical engineering students. S/U grading.

597C. Preparation for Ph.D. Oral Qualifying Examination. (2 to 16) Tutorial, to be arranged. Limited to graduate biomedical engineering students. Preparation for oral qualifying examination, including preliminary research on dissertation. S/U grading.

598. Research for and Preparation of M.S. Thesis. (2 to 12) Tutorial, to be arranged. Limited to graduate biomedical engineering students. Supervised independent research for M.S. candidates, including thesis prospectus. S/U grading.

599. Research for and Preparation of Ph.D. Dissertation. (2 to 16) Tutorial, to be arranged. Limited to graduate biomedical engineering students. Usually taken after students have been advanced to candidacy. S/U grading.

BIOMEDICAL PHYSICS

Interdepartmental Program

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Michael McNitt-Gray, Ph.D., *Chair*

Faculty Administrative Committee

Magnus Dahlbom, Ph.D. (*Molecular and Medical Pharmacology*)
Dieter R. Enzmann, M.D. (*Radiological Sciences*)
Michael McNitt-Gray, Ph.D. (*Radiological Sciences*)
Michael E. Phelps, Ph.D. (*Molecular and Medical Pharmacology*)
Michael L. Steinberg, M.D. (*Radiation Oncology*)

Scope and Objectives

The Biomedical Physics M.S./Ph.D. Program is an AAPM-accredited interdepartmental graduate program supported by the Departments of

Molecular and Medical Pharmacology, Radiation Oncology, and Radiological Sciences. It offers training in four specialties: molecular imaging, medical imaging, therapeutic medical physics, and radiation biology/experimental radiation therapy. Specialized facilities for training and research are available in the departmental clinical laboratories, the UCLA-DOE Laboratory of Structural Biology and Molecular Medicine, the Image Processing Laboratory, and a number of associated hospitals. Highly specialized equipment includes two biomedical cyclotrons, the radiation oncology cyclotron, the picture archiving and communication system (PACS), four positron-emission tomography (PET) scanners, the stereotactic gamma irradiator, and many VAX and SUN computers with image processor systems. In addition, clinical equipment is available to supervised students for practicums and research purposes. The program prepares students for careers as independent researchers or professional medical physicists, and graduates are qualified to work in a clinical environment and to pursue board certification as medical physicists or to apply for a clinical medical physics residency.

Graduates in biomedical physics can expect to engage in any combination of research, teaching, clinical service, and consultation. Biomedical physicists are usually employed in hospitals frequently associated with a medical school, where they are members of the academic staff. They are also in demand in high-technology private industry engaging in research and development of diagnostic equipment. In government agencies, biomedical physicists are involved in the formulation and enforcement of regulations applied to the use of radiation in healthcare delivery.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Biomedical Physics Program offers Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Biomedical Physics.

Biomedical Physics

Upper Division Course

199. Directed Research in Biomedical Physics. (2 to 4) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200A. Physics and Chemistry of Nuclear Medicine. (4) Lecture, three hours; discussion, one hour. Nuclear structure, statistics of radioactive decay, nuclear radiations and their interaction with matter, nu-

clear decay processes, nuclear reactions, and compartment models. Physical and chemical properties of radioactive preparations used in nuclear medicine. Basic principles of nuclear medicine imaging, SPECT, and PET. S/U or letter grading.

200B. Nuclear Medicine Instrumentation. (4) Lecture, one hour; laboratory, three hours. Requisite: course 200A. Introduction to nuclear medicine instrumentation, including well ionization chambers, probe and well scintillation detectors, scintillation cameras, and single photon and positron emission computed tomography. S/U or letter grading.

201. Medical Radiation Accelerator Design. (4) Lecture, three hours. Requisite: course 216. Overview of physical principles involved in design of current particle accelerators (electron, proton, heavy particle) and analysis of characteristics of current accelerators and facility design. S/U or letter grading.

202A-202B-202C. Applications of Medical Physics to Clinical Problems. (4-4-4) Clinic, four hours. Selected studies in clinical use of radioisotopes. S/U or letter grading:

202A. Nuclear Medicine. (4) Clinic, four hours. Requisite: course 200B. S/U or letter grading.

202B. Diagnostic Radiology. (4) Clinic, four hours. Requisites: courses 200A, 205. S/U or letter grading.

202C. Radiation Therapy. (4) Clinic, four hours. Requisites: courses 203, 204, 208B, 221. S/U or letter grading.

203. Physics of Radiation Therapy. (4) Lecture, three hours; discussion, one hour. Requisite: course 216. Radiation quantities and units. Radiation dosimetry, clinical applications in treatment planning. Methods of measuring radiation quantities. Calibration of radiation therapy equipment. Letter grading.

204. Introductory Radiation Biology. (4) Lecture, four hours. Effect of ionizing radiation on chemical and biological systems. S/U or letter grading.

205. Physics of Diagnostic Radiology. (4) Lecture, three hours; laboratory, one hour. Production of X rays, basic interactions between X rays and matter, X-ray system components, physics principles of medical radiography, radiographic image quality, fluoroscopy, image intensifiers, special procedures, X-ray protection. Laboratory experiments illustrate basic theory. S/U or letter grading.

206. Advanced Instrumentation. (4) Lecture, three hours; discussion, one hour. Requisite: course 205. Introduction to recent advances in digital diagnostic imaging systems, with topics centered on instrumentation including digital subtraction angiography (DSA) methods of producing three-dimensional images. S/U or letter grading.

207. Monte Carlo Methods with Applications for Radiological Sciences. (4) Lecture, two hours; laboratory, one hour. Requisites: courses 200A, 205, 216. Introduction to Monte Carlo methods, with application to radiation transport of charged and uncharged particles. Specific applications in radiological sciences. Letter grading.

208A. Medical Physics Laboratory: Medical Imaging. (4) Discussion, two hours; laboratory, four hours. Requisite: course 205. Hands-on experience performing acceptance testing and quality control checks of imaging equipment such as fluoroscopy, digital subtraction angiography, mammography, ultrasound, magnetic resonance imaging, computed tomography, and computed radiography. S/U or letter grading.

208B. Medical Physics Laboratory: Radiation Therapy. (4) Discussion, two hours; laboratory, four hours. Requisite: course 203. Hands-on experience calibrating treatment planning and radiation therapy equipment. S/U or letter grading.

209. Digital Techniques in Radiological Sciences. (4) Lecture, three hours; discussion, one hour. Preparation: one course in C or another computer language. Basic principles of digital technology used in radiological sciences. Concepts and experience necessary to undertake radiological research in diverse computing environment. Discussion of relationship between computers and diagnostic equipment with

regard to data acquisition, equipment interfacing, and data analysis. C language programming taught. S/U or letter grading.

210. Computer Vision in Medical Imaging. (4) Lecture, three hours; discussion, one hour. Recommended requisites: Mathematics 155, Program in Computing 10A. Study of image segmentation, feature extraction, object recognition, classification, and visualization with biomedical applications. Topics include region-growing, edge detection, mathematical morphology, clustering, neural networks, and volume rendering in lectures, case studies, and programming projects. S/U or letter grading.

211. Medical Ultrasound. (4) Lecture, 90 minutes; laboratory, two hours. Preparation: one calculus course. Production of real-time ultrasound images, transducer modeling and design, Doppler and color flow instrumentation, biohazards of ultrasound, ultrasound phantom design, and ultrasound tissue characterization techniques. Laboratory included. S/U or letter grading.

212. Biochemical Basis of Positron-Emission Tomography (PET). (4) Lecture, three hours; discussion, one hour. Introduction to biochemical processes and application of radioisotopes to study metabolism noninvasively by positron-emission tomography (PET). Validation of kinetic models to derive quantitative information from PET. Introduction to clinical and experimental application of PET. S/U or letter grading.

213. Quantitative Autoradiography. (4) Lecture, three hours; discussion, one hour. Application of quantitative autoradiography for estimating brain and heart functions. Topics include 2-deoxyglucose method for metabolic rate; iodoantipyrine method for blood flow; amino acid method for protein synthesis; quantitative receptor autoradiography; neuroanatomy and neurophysiology of autoradiogram and PET scan interpretation. S/U or letter grading.

214. Medical Image Processing Systems. (4) Lecture, three hours; discussion, one hour. Requisites: courses 209, 210. Advanced image processing and image analysis techniques applied to medical images. Discussion of approaches to computer-aided diagnosis and image quantitation, as well as application of pattern classification techniques (neural networks and discriminant analysis). Examination of problems from several imaging modalities (CT, MR, CR, and mammography). S/U or letter grading.

215. Breast Imaging Physics and Instrumentation. (4) Lecture, three hours; laboratory, two hours. Requisite: course 205. Special requirements of mammography, design of dedicated mammography X-ray units from generators and tubes through screen/film cassettes. Stereotactic biopsy units, cost/benefit controversy of screening mammography, digital mammography, computer-aided diagnosis, telemammography, breast MRI, and breast ultrasound. S/U or letter grading.

216. Fundamentals of Dosimetry. (4) Lecture, three hours; laboratory, one hour. Review of fundamental interactions of radiation and matter and introduction to fundamentals of radiation dosimetry. Overview of dosimetry instrumentation as well as radiation sources. S/U or letter grading.

217. Statistics and Data Analysis in Biomedical Physics. (2) Lecture, two hours; laboratory, one hour. Requisites: Mathematics 31A, 31B, 32A, 32B, 33A, 33B. Introduction to computer-based statistical concepts, data analysis, and experimental design within biomedical physics research. Standard statistical packages and various statistical computing algorithms on relevant data sets within radiological sciences. Letter grading.

218. Radiologic Functional Anatomy. (2) Lecture, two hours. Introduction to human anatomy, cell biology, and physiology as visualized through microscopy, molecular imaging, radiography, CT, MRI, ultrasonography, PET, and SPECT. Letter grading.

M219. Principles and Applications of Magnetic Resonance Imaging. (4) (Formerly numbered 219.) (Same as Biomedical Engineering M219.) Lecture, three hours; discussion, one hour. Basic principles of magnetic resonance (MR), physics, and image forma-

tion. Emphasis on hardware, Bloch equations, analytic expressions, image contrast mechanisms, spin and gradient echoes, Fourier transform imaging methods, structure of pulse sequences, and various scanning parameters. Introduction to advanced techniques in rapid imaging, quantitative imaging, and spectroscopy. Letter grading.

220A-220D. Laboratory Rotations in Biomedical Physics. (2-2) Laboratory, two hours. Laboratory projects to provide students with introduction to field. One oral and one written presentation required. S/U grading. **220A.** Biophysics; **220B.** Medical Imaging; **220C.** Therapeutic Medical Physics; **220D.** Radiation Biology and Experimental Radiation Therapy.

221. Applied Health Physics. (4) Lecture, three hours; discussion, one hour. Requisite: course 216. Basics of radiation safety as applied to medical applications. Introduction to all regulatory issues pertaining to medical uses of radioactivity. Letter grading.

222. Advances in Medical Magnetic Resonance: Clinical MR Spectroscopy and Fast MRI Techniques. (4) Lecture, three hours; laboratory, one hour. Requisite: course 219. Basic principles of NMR spectroscopy, localized spectroscopic sequences on wholebody environment, single/multishot localization, water/fat suppression, chemical shift imaging sequences, processing with multidimensional Fourier transforms, gradient/spin-echo based echo-planar imaging, diffusion/perfusion imaging techniques. Letter grading.

223. Seminar: Radiation Biology. (4) Seminar, four hours. Exploration of physiologic and molecular mechanisms that impact on response of normal and malignant tissues to ionizing radiation, with particular emphasis on critical and high in-depth analysis of approaches through which such responses can be modified in therapeutic setting. Understanding of rationale for integrating biological information into process of treatment planning and delivery. S/U grading.

227. Human Disease: Current and Future Role of Biomedical Physics. (4) Lecture, three hours; discussion, one hour. Present and future roles of biomedical physics in diagnosis and treatment of human disease, with focus on interdisciplinary nature of this field. Exploration of two diseases in depth with detailed description of roles of physics-based diagnostic imaging and therapeutic options for each disease. Description of current and future technologies, as well as techniques that exploit interaction between diagnosis and therapy. Letter grading.

M230. Computed Tomography: Theory and Applications. (4) (Same as Biomathematics M230.) Lecture, four hours. Computed tomography is three-dimensional imaging technique being widely used in radiology and is becoming active research area in biomedicine. Basic principles of computed tomography (CT), various reconstruction algorithms, special characteristics of CT, physics in CT, and various biomedical applications. S/U or letter grading.

M248. Introduction to Biological Imaging. (4) (Same as Biomedical Engineering M248 and Pharmacology M248.) Lecture, three hours; laboratory, one hour; outside study, seven hours. Exploration of role of biological imaging in modern biology and medicine, including imaging physics, instrumentation, image processing, and applications of imaging for range of modalities. Practical experience provided through series of imaging laboratories. Letter grading.

260A-260B-260C. Seminars: Biomedical Physics. (1-1-1) Seminar, one hour. Joint critical study by students and instructors in fields of knowledge pertaining to biomedical physics. Periodic contributions by visiting scientists. Discussion of research in progress. Student presentations required in spring term. May be repeated. S/U (260A, 260B) and letter (260C) grading.

M266. Advanced Magnetic Resonance Imaging. (4) (Same as Neuroscience M267 and Psychiatry M266.) Lecture, four hours. Starting with basic principles, presentation of physical basis of magnetic resonance imaging (MRI), with emphasis on developing advanced applications in biomedical imaging, including both structural and functional studies. Instruction more intuitive than mathematical. Letter grading.

268. Radiopharmaceutical Chemistry. (4) Lecture, two hours; discussion, two hours. Current concepts in radioactive pharmaceutical agents in clinical use, including promising investigational agents. Utilization of short-lived, cyclotron-produced isotopes in radiopharmaceuticals. Rational design of radiodiagnostic agents. Letter grading.

269. Seminar: Medical Imaging. (1) Seminar, one hour. Continuous registration required of students in medical imaging specialty. Topics of current interest in medical imaging, with lecturers from department, other universities, and private industry. S/U or letter grading.

M285. Functional Neuroimaging: Techniques and Applications. (3) (Same as Biomedical Engineering M284, Neuroscience M285, Psychiatry M285, and Psychology M278.) Lecture, three hours. In-depth examination of activation imaging, including MRI and electrophysiological methods, data acquisition and analysis, experimental design, and results obtained thus far in human systems. Strong focus on understanding technologies, how to design activation imaging paradigms, and how to interpret results. Laboratory visits and design and implementation of functional MRI experiment. S/U or letter grading.

M424. Functional Magnetic Resonance Imaging Journal Club. (2) (Same as Psychiatry M424.) Discussion, 90 minutes. Limited to 10 students. Current topics in functional neuroimaging, with emphasis on novel applications, analysis, and acquisition methods. Presentation and critique of student papers. Overall emphasis on magnetic resonance imaging. Example areas include tractography through diffusion tensor imaging, jittered event-related experimental designs, parallel receiver MR imaging, integrated electrophysiological and image acquisition. S/U grading.

495. Special Studies in Biomedical Physics. (4) Seminar, two hours; laboratory, four hours. Teaching assistance in graduate laboratory courses under supervision of faculty member. S/U grading.

596. Research in Biomedical Physics. (4 to 12) Tutorial, to be arranged. Directed individual study or research. Only one 596 course may be applied toward M.S. degree requirements. May be repeated for credit. S/U or letter grading.

597. Preparation for Ph.D. Qualifying Examinations. (4) Tutorial, to be arranged. May not be applied toward M.S. degree requirements. May not be repeated. S/U grading.

598. Research for and Preparation of M.S. Thesis. (4 to 12) Tutorial, to be arranged. Two 598 courses (or 598 and 596 combined) may be applied toward M.S. degree requirements. May be repeated. S/U grading.

599. Research for Ph.D. Dissertation. (4 to 12) Tutorial, to be arranged. Preparation: successful completion of screening examinations. Research for and preparation of Ph.D. dissertation. May be repeated. S/U grading.

BIOMEDICAL RESEARCH

*Interdisciplinary Minor
College of Letters and Science*

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Utpal Banerjee, Ph.D., *Chair*

Faculty Administrative Committee

Utpal Banerjee, Ph.D. (*Biological Chemistry, Molecular, Cell, and Developmental Biology*)
Michael F. Carey, Ph.D. (*Biological Chemistry*)
Ellen M. Carpenter, Ph.D., in Residence (*Psychiatry and Biobehavioral Sciences*)
John J. Colicelli, Ph.D. (*Biological Chemistry*)
Albert J. Courey, Ph.D. (*Chemistry and Biochemistry*)
Soraya De Chadarevian, Ph.D. (*History*)
Frank A. Laski, Ph.D. (*Molecular, Cell, and Developmental Biology*)
Aldons J. Lusis, Ph.D. (*Human Genetics, Medicine, Microbiology, Immunology, and Molecular Genetics*)
Kelsey C. Martin, M.D., Ph.D. (*Biological Chemistry, Psychiatry and Biobehavioral Sciences*)
Jeffery F. Miller, Ph.D. (*Microbiology, Immunology, and Molecular Genetics*)
Dwayne D. Simmons, Ph.D. (*Integrative Biology and Physiology*)
Stephen T. Smale, Ph.D. (*Microbiology, Immunology, and Molecular Genetics*)
Yi E. Sun, Ph.D. (*Molecular and Medical Pharmacology, Psychiatry and Biobehavioral Sciences*)
Hong Wu, M.D., Ph.D. (*Molecular and Medical Pharmacology*)

Scope and Objectives

The Biomedical Research minor is designed to incorporate research into undergraduate science education at UCLA. Applications may be submitted by any UCLA student who meets the admission requirements and has the potential to satisfy the requirements. Students explore the scientific questions and experimental approaches of biomedical research. Faculty members and staff facilitate early placement of students into laboratories on campus for independent research. Students are trained to analyze research literature, present their research in oral and poster formats, and appreciate the ethical, historical, and philosophical issues facing biomedical research.

Undergraduate Study

Biomedical Research Minor

Admission to the Biomedical Research minor is competitive, and application follows completion of Biomedical Research 5HA, Honors Collegium 70A, Life Sciences 10H, or an approved alternative course. Applications must be submitted no later than the first term of the junior year. Students must be in good academic standing and demonstrate a genuine interest in research. All degree requirements, including the specific requirements for this minor, must be fulfilled within the unit maximum set forth by the College of Letters and Science.

Required Lower Division Courses (9 units): Biomedical Research 5HB (or an approved alternative course) and Molecular, Cell, and Developmental Biology 60.

Required Upper Division Courses (24 units): (1) Sixteen units (four courses) of approved laboratory research through either course 198 or 199; (2) one history of science or philosophy of science course selected from History 179A, 179B, 180A, Neurobiology M168, M169, Philosophy 124, 125, 132, or 155; and (3) Biomedical Research 193H and 194H, or the required journal club seminars (such as Biological

Chemistry 191 and Chemistry and Biochemistry 193A) for students in the Howard Hughes Undergraduate Research Program, MARC, or UC LEADS.

Students are expected to file a senior research thesis after completion of their 16 research units and must participate in at least one conference in which they present their research. Up to 8 units of research may be applied toward departmental requirements for the major. The research project and thesis may be the same as those for departmental honors.

Transfer credit for any required course is subject to approval. Students with a grade of less than B (3.0) in any minor course or a cumulative grade-point average of less than 3.0 are subject to dismissal from the minor.

Each minor course must be taken for a letter grade. Successful completion of the minor is indicated on the transcript and diploma.

Biomedical Research

Lower Division Courses

5HA. Biomedical Research: Concepts and Strategies. (4) (Formerly numbered Life Sciences 5HA.) Lecture, three hours. Designed for freshmen/sophomores. Exploration of scientific concepts and experimental approaches through seminars by UCLA faculty members on their cutting-edge research. Topics may include areas of study such as cancer, stem cells, and infectious disease, as well as more basic research in cell and molecular biology. Letter grading.

5HB. Biomedical Research: Essential Skills and Concepts. (4) (Formerly numbered Life Sciences 5HB.) Lecture, three hours; discussion, one hour. Prerequisite: course 5HA. Designed for freshmen/sophomores. Exploration of scientific concepts and experimental approaches through seminars by UCLA faculty members on their cutting-edge research. Topics may include areas of study such as cancer, stem cells, and infectious disease, as well as more basic research in cell and molecular biology. Student investigation of one or more laboratories on campus and presentation of brief synopsis of single research project from one laboratory. Letter grading.

Upper Division Courses

193H. Journal Club Seminars: Current Topics in Biomedical Research. (2) (Formerly numbered Life Sciences 193H.) Seminar, two hours. Limited to Biomedical Research minor students. Presentation and discussion of recent papers from primary literature in biosciences. Letter grading.

194H. Research Group Seminars: Data Presentation in Biomedical Research. (2) (Formerly numbered Life Sciences 194H.) Seminar, two hours. Prerequisite: course 193H. Limited to Biomedical Research minor students. Preparation of oral presentations based on student laboratory research at UCLA. May be repeated for credit. Letter grading.

199. Directed Biomedical Research. (4) Tutorial, 12 hours. Limited to Biomedical Research minor students. Supervised individual research under guidance of faculty mentor. Culminating report describing progress and signed by student and faculty mentor required. May be repeated for credit. Individual contract required. Letter grading.

BIostatISTICS

School of Public Health

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William G. Cumberland, Ph.D., *Chair*

Professors

Thomas R. Belin, Ph.D.
Ronald S. Brookmeyer, Ph.D.
William G. Cumberland, Ph.D.
Dorota M. Dabrowska, Ph.D.
Robert M. Elashoff, Ph.D.
Stefan Horvath, Ph.D., Sc.D.
Gang Li, Ph.D.
Honghu Liu, Ph.D.
Janet S. Sinsheimer, Ph.D.
Robert E. Weiss, Ph.D.
Weng Kee Wong, Ph.D.

Professors Emeriti

Abdelmonem A. Afifi, Ph.D.
Nancy G. Berman, Ph.D.
Potter C. Chang, Ph.D.
Virginia A. Clark, Ph.D.
Frederick J. Dorey, Ph.D.
Donald Guthrie, Ph.D., *in Residence*
Robert I. Jennrich, Ph.D.

Associate Professors

Christina Ramirez Kitchen, Ph.D.
Marc A. Suchard, Ph.D.
Catherine A. Sugar, Ph.D., *in Residence*

Assistant Professors

Rajesh R. Nandy, Ph.D.
Donatello Telesca, Ph.D.

Lecturers

Jeffrey A. Gornbein, Dr. P.H.
Fei Yu, Ph.D.

Adjunct Professors

David W. Gjertson, Ph.D.
Martin L. Lee, Ph.D.
James W. Sayre, Dr.P.H.

Adjunct Assistant Professors

Catherine M. Crespi, Ph.D.
Angela P. Presson, Ph.D.
Karabi Sinha, Ph.D.

Scope and Objectives

In recent years biostatistics has become one of the most stimulating areas of applied statistics. The field encompasses the methodology and theory of statistics as applied to problems in the life and health sciences. Biostatisticians are trained in the skilled application of statistical methods to the solution of problems encountered in public health and medicine. They collaborate with scientists in nearly every area related to health and have made major contributions to our understanding of AIDS, cancer, genetics, bioinformatics, and immunology, as well as other areas. Further, biostatisticians spend a considerable amount of time developing and evaluating the statistical methodology used in those projects. The Department of Biostatistics offers M.S. and Ph.D. degrees in Biostatistics and, through the School of Public

Health, the M.P.H. and Dr.P.H. degrees with a specialization in biostatistics (see Public Health Schoolwide Programs). All students receive a balanced education, blending theory and practice.

A degree in biostatistics prepares students for work in a wide variety of challenging positions in government, industry, and education. Graduates have found careers involving teaching, research, and consulting in such fields as medicine, public health, life sciences, and survey research. There has always been a strong demand for well-trained biostatisticians; graduates have had little difficulty finding employment well suited to their particular interests.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Biostatistics offers Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Biostatistics.

Biostatistics

Upper Division Courses

100A. Introduction to Biostatistics. (4) Lecture, three hours; discussion, one hour; laboratory, one hour. Preparation: one biological or physical sciences course. Suitable for juniors/seniors. Students who have completed courses in statistics may enroll only with consent of instructor. Not open for credit to students with credit for course 110A. Introduction to methods and concepts of statistical analysis. Sampling situations, with special attention to those occurring in biological sciences. Topics include distributions, tests of hypotheses, estimation, types of error, significance and confidence levels, sample size. P/NP or letter grading.

100B. Introduction to Biostatistics. (4) Lecture, three hours; discussion, one hour; laboratory, one hour. Requisite: course 100A. Not open for credit to students with credit for course 110B. Introduction to analysis of variance, linear regression, and correlation analysis. P/NP or letter grading.

110A. Basic Biostatistics. (4) Lecture, three hours; discussion, one hour; laboratory, one hour. Requisite: Mathematics 31B. Not open for credit to students with credit for course 100A. Basic concepts of statistical analysis applied to biological sciences. Topics include random variables, sampling distributions, parameter estimates, statistical inference. P/NP or letter grading.

110B. Basic Biostatistics. (4) Lecture, three hours; discussion, one hour; laboratory, one hour. Requisite: course 110A. Not open for credit to students with credit for course 100B. Topics include elementary analysis of variance, simple linear regression; topics related to analysis of variance and experimental designs. P/NP or letter grading.

115. Topics in Estimation. (4) Lecture, three hours; discussion, one hour. Requisites: Statistics 100A, 100B. Small and large sample properties of common estimation techniques arising in biostatistical application. Letter grading.

197. Individual Studies in Biostatistics. (2 to 4) Tutorial, four hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200A. Biostatistics. (4) Lecture, three hours; discussion, one hour; laboratory, one hour. Requisites: courses 100A and 100B, or 110A and 110B. Topics in methodology of applied statistics, such as design, analysis of variance, regression. S/U or letter grading.

200B-200C. Biostatistics. (4-4) Lecture, three hours; discussion, one hour; laboratory, one hour. S/U or letter grading. **200B.** Requisites: courses 200A, 202. Multiple linear regression, including model validation, influence of observations, regression diagnostics; discriminant analysis; principal components; factor analysis and clinical trials. **200C.** Requisites: courses 200A, 200B, 202. Measures of association and analysis of categorical data, theory of generalized linear models.

201. Topics in Applied Regression. (4) Lecture, three hours; discussion, one hour; laboratory, one hour. Requisite: course 200A. Further studies in multiple linear regression, including applied multiple regression models, regression diagnostics and model assessment, factorial and repeated measure analysis of variance models, nonlinear regression, logistic regression, propensity scores, matching versus stratification, Poisson regression, and classification trees. Applications to biomedical and public health scientific problems. Letter grading.

202. Theory of Regression Analysis. (2) Lecture, two hours. Requisites: courses 110A, 110B. Corequisite: course 200A. Additional theoretical topics in regression analysis for students concurrently enrolled in course 200A. Topics include regression applications of matrix algebra, multivariate calculus, and statistical computing. Letter grading.

M206A-M206B-M206C. Statistics in Psychiatric and Biobehavioral Research. (2-2-2) (Same as Psychiatry M286A-M286B-M286C.) Seminar, 90 minutes. Requisite: course 100B. Designed for graduate students. Examples from psychiatric literature used to illustrate statistical ideas and analysis strategies. Topics include experimental designs, sample size calculations, parametric versus nonparametric tests, regression, ANOVA, factor analysis, defining composite variables, causal inference. Computer used to illustrate basic data analysis. S/U or letter grading.

M208. Introduction to Demographic Methods. (4) (Same as Community Health Sciences M208, Economics M208, and Sociology M213A.) Lecture, four hours. Preparation: one introductory statistics course. Introduction to methods of demographic analysis. Topics include demographic rates, standardization, decomposition of differences, life tables, survival analysis, cohort analysis, birth interval analysis, models of population growth, stable populations, population projection, and demographic data sources. Letter grading.

M209. Statistical Modeling in Epidemiology. (4) (Same as Epidemiology M212.) Lecture, four hours. Preparation: two terms of statistics (three terms recommended). Recommended: Epidemiology M204 or M211. Principles of modeling, including meanings of models, a priori model specification, translation of models into explicit population assumptions, model selection, model diagnostics, hierarchical (multilevel) modeling. S/U or letter grading.

M210. Statistical Methods for Categorical Data. (4) (Same as Biomathematics M231.) Lecture, three hours; discussion, one hour. Requisites: course 100B or 110B, Statistics 100B. Statistical techniques for analysis of categorical data; discussion and illustration of their applications and limitations. S/U or letter grading.

M211. Statistical Methods for Epidemiology. (4) (Same as Epidemiology M211 and Statistics M250.) Lecture, four hours. Preparation: two terms of statistics (such as courses 100A, 100B). Requisites: Epidemiology 200B, 200C. Concepts and methods tailored for analysis of epidemiologic data, with emphasis on tabular and graphical techniques. Expansion of topics introduced in Epidemiology 200B and 200C and introduction of new topics, including principles of epidemiologic analysis, trend analysis, smoothing and sensitivity analysis. S/U or letter grading.

212. Distribution Free Methods. (4) Lecture, three hours; discussion, one hour. Requisites: course 100B or 110B, Statistics 100B. Theory and application of distribution free methods in biostatistics. S/U or letter grading.

213. Statistical Simulation Techniques. (4) Lecture, three hours; discussion, one hour. Requisites: course 110B, Statistics 100B. Techniques for simulating important statistical distributions, with applications in biostatistics. S/U or letter grading.

214. Finite Population Sampling. (4) Lecture, three hours. Requisites: course 110B, Statistics 100B. Theory and methods for sampling finite populations and estimating population characteristics. S/U or letter grading.

M215. Survival Analysis. (4) (Same as Biomathematics M281.) Lecture, three hours; discussion, one hour. Requisite: course 115 or Statistics 100C. Statistical methods for analysis of survival data. S/U or letter grading.

219. Special Topics: Supplemental Topics. (4) Lecture, three hours; discussion, one hour. Requisite: course 115. Topics in biostatistics not covered in other courses. Letter grading.

M220. Advanced Experimental Statistics. (4) (Same as Physiological Science M200.) Lecture, four hours. Introduction to statistics with focus on computer simulation instead of formulas. Bootstrap and Monte Carlo methods used to analyze physiological data. S/U or letter grading.

230. Statistical Graphics. (4) Lecture, three hours; discussion, one hour; laboratory, one hour. Requisites: courses 110A, 110B. Graphical data analysis emphasizes use of visual displays of quantitative data to gain insight into data structure by exploring patterns and relationships, and to enhance classical numerical analyses, especially assumption validity checking. Principles of graph construction, graphical methods, and perception issues. S/U or letter grading.

M232. Statistical Analysis of Incomplete Data. (4) (Same as Biomathematics M232.) Lecture, three hours; discussion, one hour. Requisite: Statistics 100B. Discussion of statistical analysis of incomplete data sets, with material from sample survey, econometric, biometric, psychometric, and general statistical literature. Topics include treatment of missing data in statistical packages, missing data in ANOVA and regression imputation, weighting, likelihood-based methods, and nonrandom nonresponse models. Emphasis on application of methods to applied problems, as well as on underlying theory. S/U or letter grading.

233. Statistical Methods in AIDS. (2) Lecture, two hours. Requisites: courses 110A, 110B, M215. Coverage of methods necessary to address statistical problems in AIDS research, including projection methods for size of AIDS epidemic and methods for estimating incubation distribution. S/U or letter grading.

M234. Applied Bayesian Inference. (4) (Same as Biomathematics M234.) Lecture, three hours; discussion, one hour; laboratory, one hour. Requisites: courses 115 (or Statistics 100C), 200A. Bayesian approach to statistical inference, with emphasis on biomedical applications and concepts rather than mathematical theory. Topics include large sample Bayes inference from likelihoods, noninformative and conjugate priors, empirical Bayes, Bayesian approaches to linear and nonlinear regression, model selection, Bayesian hypothesis testing, and numerical methods. S/U or letter grading.

M235. Causal Inference. (4) (Same as Psychiatry M232.) Lecture, three hours; discussion, one hour. Requisite: course 200A. Selection bias, confounding, ecological paradox, contributions of Fisher and Neyman. Rubin model for causal inference, propensity scores. Analysis of clinical trials with noncompliance. Addressing confounding in longitudinal studies. Path analysis, structural equation, and graphical models. Decision making when causality is disputed. Letter grading.

M236. Longitudinal Data. (4) (Same as Biomathematics M282.) Lecture, three hours; discussion, one hour; laboratory, one hour. Requisites: course 200A, one other 200-level biostatistics or statistics course. Longitudinal data analysis, graphing longitudinal data, specifying predictors, modeling variances and covariance, inference, computing, hierarchical models, and random effects. S/U or letter grading.

M237. Applied Genetic Modeling. (4) (Same as Biomathematics M207B and Human Genetics M207B.) Lecture, three hours; laboratory, one hour. Requisites: courses 110A, 110B. Methods of computer-oriented human genetic analysis. Topics include statistical methodology underlying genetic analysis of both quantitative and qualitative complex traits. Laboratory for hands-on computer analysis of genetic data; laboratory reports required. Course complements M272; students may take either and are encouraged to take both. S/U or letter grading.

M238. Methodology of Clinical Trials. (4) (Same as Biomathematics M284.) Lecture, three hours; discussion, two hours. Requisites: courses 200A, M215. Methodological principles of clinical trials, actual practice and principles of trials. Considerable focus on phase two trials and multiclinical phase three trials. Emphasis on major inferential issues. S/U or letter grading.

M239. Mathematical and Statistical Phylogenetics. (4) (Same as Biomathematics M211 and Human Genetics M211.) Lecture, three hours; laboratory, one hour. Requisites: courses 110A, 110B, Mathematics 170A. Theoretical models in molecular evolution, with focus on phylogenetic techniques. Topics include evolutionary tree reconstruction methods, studies of viral evolution, phylogeography, and coalescent approaches. Examples from evolutionary biology and medicine. Laboratory for hands-on computer analysis of sequence data. S/U or letter grading.

240. Master's Seminar and Research Resources for Graduating Biostatistics M.S. Students. (4) Seminar, three hours. Introduction to resources for finding statistical literature. Discussion of principles of making statistical presentations and how to write statistical reports, including writing abstracts and choice of key words. Discussion of journal article preparation and submission format and refereeing process to help students make progress on their master's reports. Letter grading.

245. Advanced Seminar: Biostatistics. (2) Seminar, two hours. Requisite: course 200C. Current research in biostatistics. May be repeated for credit. S/U grading.

250A-250B. Linear Statistical Models. (4-4) Lecture, three hours; discussion, one hour. Preparation: one upper division three-term theoretical statistics course. Topics include linear algebra applied to linear statistical models, distribution of quadratic forms, Gauss/Markov theorem, fixed and random component models, balanced and unbalanced designs. Letter grading.

251. Multivariate Biostatistics. (4) Lecture, three hours; discussion, one hour. Requisite: course 250A. Multivariate analysis as used in biological and medical situations. Topics from multivariate distributions, component analysis, factor analysis, discriminant analysis, MANOVA, MANCOVA, longitudinal models with random coefficients. S/U or letter grading.

255. Advanced Topics and Probability in Biostatistics. (4) Lecture, three hours; discussion, one hour. Requisites: Statistics 200A, 200B. Topics include conditioning, modes of convergence, basic limit results for empirical processes, von-Mises calculus, and notions of efficiency in statistics. Applications cover M-L-R es-

timation in two-sample and regression models, goodness of fit methods, smoothing techniques, and bootstrap. S/U or letter grading.

270. Stochastic Processes. (4) Lecture, three hours. Preparation: upper division mathematics (including statistics and probability). Stochastic processes applicable to medical and biological research. Letter grading.

M272. Theoretical Genetic Modeling. (4) (Same as Biomathematics M207A and Human Genetics M207A.) Lecture, three hours; discussion, one hour. Requisites: Mathematics 115A, 131A, Statistics 100B. Mathematical models in statistical genetics. Topics include population genetics, genetic epidemiology, gene mapping, design of genetics experiments, DNA sequence analysis, and molecular phylogeny. S/U or letter grading.

273. Classification and Regression Trees (CART) and Other Algorithms. (4) Lecture, three hours. Requisite: course 200C. Instruction in use of statistical tools in analysis of large datasets. Classification and regression trees as well as other adaptive algorithms. Implementation of CART software and other programs to real datasets. S/U or letter grading.

275. Advanced Survival Analysis. (4) Lecture, three hours; discussion, one hour. Requisites: course 255, Statistics 200A, 200B. Recommended: course M215. Censoring and truncation, single sample problems, K-sample comparisons, Cox regression model, hazard rate and density estimation, estimation in Markov chains and Markov renewal processes, multivariate models, competing risks. S/U or letter grading.

276. Inferential Techniques that Use Simulation. (4) Lecture, three hours; discussion, one hour. Requisites: Statistics 200A, 200B. Recommended: Biostatistics 213. Theory and application of recently developed techniques for statistical inference that use computer simulation. Topics include bootstrap, multiple imputation, data augmentation, stochastic relaxation, and sampling/importance resampling algorithm. S/U or letter grading.

277. Robustness and Modern Nonparametrics. (4) Lecture, three hours. Requisite: Statistics 200A. Topics include M-estimation, influence curves, breakdown point, bootstrap, jackknife, smoothing, nonparametric regression, generalized additive models, density estimation. S/U or letter grading.

M278. Statistical Analysis of DNA Microarray Data. (4) (Same as Human Genetics M278.) Lecture, three hours. Requisite: course 200C. Instruction in use of statistical tools used to analyze microarray data. Structure corresponds to analytical protocol investigators might follow when working with microarray data. S/U or letter grading.

279. Optimal Design Theory and Application. (4) Lecture, three hours. Preparation: basic programming skills. Requisite: Statistics 200B. Presentation of design methodology for regression problems, with applications to biostatistical problems. Letter grading.

M280. Statistical Computing. (4) (Same as Biomathematics M280 and Statistics M230.) Lecture, three hours. Requisites: Mathematics 115A, Statistics 100C. Introduction to theory and design of statistical programs: computing methods for linear and nonlinear regression, dealing with constraints, robust estimation, and general maximum likelihood methods. Letter grading.

285. Advanced Topics: Recent Developments. (4) Lecture, three hours; discussion, one hour. Advanced topics and developments in biostatistics not covered in Biostatistics M210 through 219 or 270 through 276 or in other courses. Possible topics include time-series analysis, classification procedures, correspondence analysis, etc. S/U or letter grading.

288. Seminar: Statistics in AIDS. (2) Seminar: two hours. Requisite: course 200C. Designed for doctoral students. Recent statistical developments in analysis of AIDS data. Participants or outside speakers present their own research or discuss articles from literature. S/U grading.

295. Application of Statistical Theories in Biomedical Research. (4) Lecture, three hours; discussion, one hour. Requisite: Statistics 100B. Review of statistical theories essential to biostatistics. Illustration of applications by examples. Topics include delta method, order statistics, asymptotic properties of MLEs, iterative algorithms for MLEs, generalized likelihood ratio tests for categorical data, and transformations. Letter grading.

296. Seminar: Research Topics in Biostatistics. (1 to 4) Seminar, two hours. Advanced study and analysis of current topics in biostatistics. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

400. Field Studies in Biostatistics. (2 or 4) Fieldwork, to be arranged. Field observation and studies in selected community organizations for health promotion or medical care. Students must file field placement and program training documentation on form available from Student Affairs Office. May not be applied toward M.S. minimum course requirement; 4 units may be applied toward 44-unit minimum total required for M.P.H. degree. Letter grading.

402A. Principles of Biostatistical Consulting. (2) Lecture, one hour; discussion, one hour. Requisite: course 100B or 110B. Presentation of structural format for statistical consulting. Role of statistician and client. Reviews of actual statistician/client interactions and case studies. S/U or letter grading.

402B. Biostatistical Consulting. (4) Discussion, two hours; laboratory, two hours. Requisite: course 402A. Principles and practices of biostatistical consulting. May be repeated for credit. S/U grading.

403A. Computer Management of Health Data. (4) Lecture, three hours; laboratory, two hours. Preparation: one statistics course. Concepts of health data management, design and maintenance of large databases on various media as well as across networks; computer programming tools and techniques facilitating data entry, transmission, data retrieval for statistical analyses, tabulation and report generation useful to biostatisticians, health planners, and other health professionals. Letter grading.

M403B. Computer Management and Analysis of Health Data Using SAS. (4) (Same as Epidemiology M403.) Lecture, two hours; laboratory, two hours. Requisites: courses 100A, 100B (100B may be taken concurrently). Introduction to practical issues in management and analysis of health data using SAS programming language. Cross-sectional and longitudinal population-based data sets to be used throughout to illustrate principles of data management and analysis for addressing biomedical and health-related hypotheses. Letter grading.

406. Applied Multivariate Biostatistics. (4) Lecture, three hours; laboratory, one hour. Preparation: at least two upper division research courses. Requisite: course 100B. Use of multiple regression, principal components, factor analysis, discriminant function analysis, logistic regression, and canonical correlation in biomedical data analysis. S/U (optional only for nondivision majors) or letter grading.

409. Doctoral Statistical Consulting Seminar. (2) Seminar, one hour; laboratory, four hours. Designed for doctoral students. Development of experience and expertise in collaborating with faculty in Schools of Public Health and Medicine. Students meet with investigators and develop design and protocol for data analysis, implement data protocol when data is obtained, and write up study with lead investigators. S/U grading.

410. Statistical Methods in Clinical Trials. (4) Lecture, three hours; discussion, two hours. Requisites: courses 100A, 100B. Design of studies in animals to assess antitumor response; randomization, historical controls, p-values, size of study, and stratification in human experimentation; various types of controls; prognostic factors, survivorship studies, and design of prognostic studies; organization of clinical trials—administration, comparability, protocols, clinical standards, data collection and management. S/U (optional only for nonmajors) or letter grading.

411. Analysis of Correlated Data. (4) Lecture, three hours. Requisite: course 200A. Statistical techniques designed for analysis of correlated data, including cluster samples, multilevel models, and longitudinal studies. Computations done on SAS and STATA. Mixed models and generalized estimation equations (GEE). Emphasis on application, not theory. S/U or letter grading.

412. Statistical Methods for Case-Control Studies. (4) Lecture, three hours. Requisite: course 200A. Statistical designs, sampling statistics, and analytic models of case-control studies. Special topics such as exploratory analyses, multiplicity of analyses, cross-validation, small sample performances of variance estimators, measurement error in covariates, and incomplete data. S/U or letter grading.

413. Introduction to Pharmaceutical Statistics. (4) Lecture, three hours; discussion, one hour. Requisites: courses 100A, 100B. Exploration of various types of statistical techniques used in pharmaceutical and related industries. Topics include bioassay and other assay techniques (e.g., ELISAs and FACs analysis), quality control techniques, and pharmacokinetic and pharmacodynamic modeling. S/U or letter grading.

414. Principles of Sampling. (4) (Formerly numbered 404.) Lecture, three hours; discussion, one hour. Requisites: course 100B, Epidemiology 100. Statistical aspects of design and implementation of sample survey. Techniques for analysis of data, including estimates and standard errors. Avoiding improper use of survey data. Letter grading.

419. Special Topics: Applied Statistics. (4) Lecture, three hours; discussion, one hour. Requisite: course 100B. Special topics in applied statistics not covered in other courses in professional series. S/U or letter grading.

495. Teacher Preparation in Biostatistics. (2) Seminar, two hours. Preparation: 18 units of cognate courses in area of specialization. May not be applied toward master's degree minimum total course requirement. May be repeated for credit. S/U grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. No more than 8 units may be applied toward master's degree minimum total course requirement; may not be applied toward minimum graduate course requirement. S/U grading.

596. Directed Individual Study or Research. (2 to 8) Tutorial, to be arranged. Limited to graduate students. Individual guided studies under direct faculty supervision. Only 4 units may be applied toward M.P.H. and M.S. minimum total course requirement. May be repeated for credit. Letter grading.

597. Preparation for Master's Comprehensive or Doctoral Qualifying Examinations. (2 to 12) Tutorial, to be arranged. Limited to graduate students. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

599. Doctoral Dissertation Research. (2 to 12) Tutorial, to be arranged. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

CHEMICAL AND BIOMOLECULAR ENGINEERING

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James C. Liao, Ph.D., *Vice Chair*

Professors

Jane P. Chang, Ph.D. (*William Frederick Seyer Professor of Materials Electrochemistry*)
Panagiotis D. Christofides, Ph.D.
Yoram Cohen, Ph.D.
James F. Davis, Ph.D.
Robert F. Hicks, Ph.D.
Louis J. Ignarro, Ph.D. (*Nobel laureate, Jerome J. Belzer Professor of Medical Research*)
James C. Liao, Ph.D.
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Harold G. Monbouquette, Ph.D.
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Professors Emeriti

Eldon L. Knuth, Ph.D.
Ken Nobe, Ph.D.
William D. Van Vorst, Ph.D.
Vincent L. Vilker, Ph.D.
A.R. Frank Wazzan, Ph.D., *Dean Emeritus*

Associate Professor

Yi Tang, Ph.D.

Assistant Professors

Gerassimos Orkoulas, Ph.D.
Tatiana Segura, Ph.D.

Scope and Objectives

The Department of Chemical and Biomolecular Engineering conducts undergraduate and graduate programs of teaching and research that focus on the areas of cellular and biomolecular engineering, systems engineering, and advanced materials processing and span the general themes of energy/environment and nanoengineering. Aside from the fundamentals of chemical engineering (applied mathematics, thermodynamics, transport phenomena, kinetics, reactor engineering and separations), particular emphasis is given to metabolic engineering, protein engineering, systems biology, synthetic biology, bio-nano-technology, biomaterials, air pollution, water production and treatment, environmental multimedia modeling, pollution prevention, combinatorial catalysis, molecular simulation, process modeling/simulation/control/optimization/integration/synthesis, membrane science, semiconductor processing, chemical vapor deposition, plasma processing and simulation, electrochemistry and corrosion, polymer engineering, and hydrogen production.

Students are trained in the fundamental principles of these fields while acquiring sensitivity to society's needs—a crucial combination needed to address the challenge of continued industrial growth and innovation in an era of economic, environmental, and energy constraints.

The undergraduate curriculum leads to a B.S. in Chemical Engineering, is accredited by ABET and AIChE, and includes the standard core curriculum, as well as biomedical engineering, biomolecular engineering, environmental engineering, and semiconductor manufacturing engineering options. The department also offers graduate courses and research leading to M.S. and Ph.D. degrees. Both graduate and undergraduate programs closely relate teaching and research to important industrial problems.

Undergraduate Study

The Chemical Engineering major is a designated capstone major. The capstone project requires students to first work individually and learn how to integrate chemical engineering fundamentals taught in prior required courses; they then work in groups to produce a paper design of a realistic chemical process using appropriate software tools. Graduates should be able to design a chemical or biological system, component, or process that meets technical and economical design objectives, with consideration of environmental, social, and ethical issues, as well as sustainable development goals. In addition, they should be able to apply their knowledge of mathematics, physics, chemistry, biology, and chemical and biological engineering into analysis and design of chemical and biochemical processes and products; function on multidisciplinary teams; identify, formulate, and solve complex chemical and biological engineering problems; and communicate effectively, both orally and in writing.

Chemical Engineering B.S.

Capstone Major

The ABET-accredited chemical engineering curricula provide a high quality, professionally oriented education in modern chemical engineering. The biomedical engineering, biomolecular engineering, environmental engineering, and semiconductor manufacturing engineering options provide students an opportunity for exposure to a subfield of chemical and biomolecular engineering. In all cases, balance is sought between engineering science and practice.

Chemical Engineering Core Option

Preparation for the Major

Required: Chemical Engineering 10; Chemistry and Biochemistry 20A, 20B, 20L, 30A, 30AL, 30B; Computer Science 31; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 1C, 4AL, 4BL.

The Major

Required: Chemical Engineering 100, 101A, 101B, 101C, 102A, 102B, 103, 104AL, 104B,

106, 107, 109, Chemistry and Biochemistry 113A, 153A; three technical breadth courses (12 units) selected from an approved list available in the Office of Academic and Student Affairs; two capstone analysis and design courses (Chemical Engineering 108A, 108B); and two elective courses (8 units) from Chemical Engineering 110, C111, C112, 113, C114, C115, C116, C118, C119, C125, C140.

For information on University and general education requirements, see the College and Schools section earlier in this catalog.

Biomedical Engineering Option

Preparation for the Major

Required: Chemical Engineering 10; Chemistry and Biochemistry 20A, 20B, 20L, 30A, 30AL, 30B; Computer Science 31; Life Sciences 2, 3; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 1C, 4AL.

The Major

Required: Chemical Engineering 100, 101A, 101B, 101C, 102A, 102B, 103, 104AL, 104B, 106, 107, 109, Chemistry and Biochemistry 113A, 153A; three technical breadth courses (12 units) selected from an approved list available in the Office of Academic and Student Affairs; two capstone analysis and design courses (Chemical Engineering 108A, 108B); and one biomedical elective course (4 units) from Chemical Engineering C115, C125, CM145 (another chemical engineering elective may be substituted for one of these with approval of the faculty adviser).

For information on University and general education requirements, see the College and Schools section earlier in this catalog.

Biomolecular Engineering Option

Preparation for the Major

Required: Chemical Engineering 10; Chemistry and Biochemistry 20A, 20B, 20L, 30A, 30AL, 30B; Computer Science 31; Life Sciences 2, 3; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 1C, 4AL.

The Major

Required: Chemical Engineering 100, 101A, 101B, 101C, 102A, 102B, 104AL, 104D, 104DL, 107, 109, C115, C125, Chemistry and Biochemistry 113A, 153A; three technical breadth courses (12 units) selected from an approved list available in the Office of Academic and Student Affairs; two capstone analysis and design courses (Chemical Engineering 108A, 108B); and one biomolecular elective course (4 units)—Chemical Engineering CM145 is recommended; another chemical engineering elective may be substituted with approval of the faculty adviser).

For information on University and general education requirements, see the College and Schools section earlier in this catalog.

Environmental Engineering Option

Preparation for the Major

Required: Chemical Engineering 10; Chemistry and Biochemistry 20A, 20B, 20L, 30A, 30AL,

30B; Computer Science 31; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 1C, 4AL, 4BL.

The Major

Required: Chemical Engineering 100, 101A, 101B, 101C, 102A, 102B, 103, 104AL, 104B, 106, 107, 109, Atmospheric and Oceanic Sciences 104, Chemistry and Biochemistry 113A, 153A; three technical breadth courses (12 units) selected from an approved list available in the Office of Academic and Student Affairs; two capstone analysis and design courses (Chemical Engineering 108A, 108B); and two elective courses (8 units) from Chemical Engineering 113, C118, C119, C140 (another chemical engineering elective may be substituted with approval of the faculty adviser).

For information on University and general education requirements, see the College and Schools section earlier in this catalog.

Semiconductor Manufacturing Engineering Option

Preparation for the Major

Required: Chemical Engineering 10; Chemistry and Biochemistry 20A, 20B, 20L, 30A, 30AL, 30B; Computer Science 31; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 1C, 4AL, 4BL.

The Major

Required: Chemical Engineering 100, 101A, 101B, 101C, 102A, 102B, 103, 104AL, 104C, 104CL, 106, 107, 109, C116, Chemistry and Biochemistry 113A, 153A; three technical breadth courses (12 units) selected from an approved list available in the Office of Academic and Student Affairs; two capstone analysis and design courses (Chemical Engineering 108A, 108B); and one elective course (4 units) from Materials Science and Engineering 104, 120, 121, 122, or 150 plus one elective course (4 units) from Electrical Engineering 2, 100, 121B, 123A, or 123B.

For information on University and general education requirements, see the College and Schools section earlier in this catalog.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Chemical and Biomolecular Engineering offers Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Chemical Engineering.

Chemical Engineering

Lower Division Courses

2. Technology and Environment. (4) Lecture, four hours; outside study, eight hours. Natural and anthropogenic flows of materials at global and regional scales. Case studies of natural cycles include global warming (CO₂ cycles), stratospheric ozone depletion (chlorine and ozone cycles), and global nitrogen cycles. Flow of materials in industrial economies compared and contrasted with natural flows; presentation of lifecycle methods for evaluating environmental impact of processes and products. P/NP or letter grading.

10. Introduction to Chemical and Biomolecular Engineering. (1) Lecture, one hour; outside study, two hours. General introduction to field of chemical and biomolecular engineering. Description of how chemical and biomolecular engineering analysis and design skills are applied for creative solution of current technological problems in production of microelectronic devices, design of chemical plants for minimum environmental impact, application of nanotechnology to chemical sensing, and genetic-level design of recombinant microbes for chemical synthesis. Letter grading.

Upper Division Courses

100. Fundamentals of Chemical and Biomolecular Engineering. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: Chemistry 20B, 20L, Mathematics 32B (may be taken concurrently), Physics 1A. Introduction to analysis and design of industrial chemical processes. Material and energy balances. Introduction to programming in MATLAB. Letter grading.

101A. Transport Phenomena I. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: Mathematics 33A, 33B. Corequisite: course 109. Introduction to analysis of fluid flow in chemical, biological, materials, and molecular processes. Fundamentals of momentum transport, Newton law of viscosity, mass and momentum conservation in laminar flow, Navier/Stokes equations, and engineering analysis of flow systems. Letter grading.

101B. Transport Phenomena II: Heat Transfer. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: course 101A. Introduction to analysis of heat transfer in chemical, biological, materials, and molecular processes. Fundamentals of thermal energy transport, molecular-level heat transfer in gases, liquids, and solids, forced and free convection, radiation, and engineering analysis of heat transfer in process systems. Letter grading.

101C. Mass Transfer. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 101B. Introduction to analysis of mass transfer in systems of interest to chemical engineering practice. Fundamentals of mass species transport, Fick law of diffusion, diffusion in chemically reacting flows, interphase mass transfer, multicomponent systems. Letter grading.

102A. Thermodynamics I. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Introduction to thermodynamics of chemical and biological processes. Work, energy, heat, and first law of thermodynamics. Second law, extremum principles, entropy, and free energy. Ideal and real gases, property evaluation. Thermodynamics of flow systems. Applications of first and second laws in biological processes and living organisms. Letter grading.

102B. Thermodynamics II. (4) (Formerly numbered 102.) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 102A. Fundamentals of classical and statistical thermodynamics in chemical and biological sciences. Phase equilibria in single and multicomponent systems. Thermodynamics of ideal and nonideal solutions. Chemical reaction equilibria. Statistical ensembles and partition functions. Statistical thermodynamics of ideal gases.

Intermolecular interactions and liquid state. Thermodynamics of polymers and biological macromolecules. Letter grading.

103. Separation Processes. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: courses 100, 101B. Application of principles of heat, mass, and momentum transport to design and operation of separation processes such as distillation, gas absorption, filtration, and reverse osmosis. Letter grading.

104AL. Chemical and Biomolecular Engineering Laboratory I. (4) Laboratory, six hours; discussion, one hour; outside study, five hours. Requisites: courses 100, 101B, 102B. Not open for credit to students with credit for former course 104A. Measurements of temperature, pressure, flow rate, viscosity, and fluid composition in chemical processes. Methods of data acquisition, equipment selection and fabrication, and laboratory safety. Completion of unstructured engineering design project. Development of written and oral communication skills. Letter grading.

104B. Chemical and Biomolecular Engineering Laboratory II. (6) Lecture, two hours; laboratory, eight hours; outside study, four hours; other, four hours. Requisites: courses 101C, 103, 104AL. Course consists of four experiments in chemical engineering unit operations, each of two weeks duration. Students present their results both written and orally. Written report includes sections on theory, experimental procedures, scaleup and process design, and error analysis. Letter grading.

104C. Semiconductor Processing. (3) Lecture, four hours; outside study, five hours. Requisite: course 101C. Corequisite: course 104CL. Basic engineering principles of semiconductor unit operations, including fabrication and characterization of semiconductor devices. Investigation of processing steps used to make CMOS devices, including wafer cleaning, oxidation, diffusion, lithography, chemical vapor deposition, plasma etching, metallization, and statistical design of experiments and error analysis. Presentation of student results in both written and oral form. Letter grading.

104CL. Semiconductor Processing Laboratory. (3) Laboratory, four hours; outside study, five hours. Requisite: course 101C. Corequisite: course 104C. Series of experiments that emphasize basic engineering principles of semiconductor unit operations, including fabrication and characterization of semiconductor devices. Investigation of processing steps used to make CMOS devices, including wafer cleaning, oxidation, diffusion, lithography, chemical vapor deposition, plasma etching, and metallization. Hands-on device testing includes transistors, diodes, and capacitors. Letter grading.

104D. Molecular Biotechnology Lecture: From Gene to Product. (2) Lecture, two hours; outside study, four hours. Requisites: courses 101C, C125. Corequisite: course 104DL. Integration of molecular and engineering techniques in modern biotechnology. Cloning of protein-coding gene into plasmid, transformation of construct into *E. coli*, production of gene product in bioreactor, downstream processing of bioreactor broth to purify recombinant protein, and characterization of purified protein. Letter grading.

104DL. Molecular Biotechnology Laboratory: From Gene to Product. (4) Laboratory, eight hours; outside study, four hours. Requisites: courses 101C, C125. Corequisite: course 104D. Integration of molecular and engineering techniques in modern biotechnology. Cloning of protein-coding gene into plasmid, transformation of construct into *E. coli*, production of gene product in bioreactor, downstream processing of bioreactor broth to purify recombinant protein, and characterization of purified protein. Letter grading.

106. Chemical Reaction Engineering. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: courses 100, 101C, 102B. Fundamentals of chemical kinetics and catalysis. Introduction to analysis and design of homogeneous and heterogeneous chemical reactors. Letter grading.

107. Process Dynamics and Control. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: courses 101C, 103 or C125, 106 or

C115. Principles of dynamics modeling and start-up behavior of chemical engineering processes. Chemical process control elements. Design and applications of chemical process computer control. Letter grading.

108A. Process Economics and Analysis. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: courses 103 (or C125), 104AL, 106 (or C115). Integration of chemical engineering fundamentals such as transport phenomena, thermodynamics, separation operations, and reaction engineering and simple economic principles for purpose of designing chemical processes and evaluating alternatives. Letter grading.

108B. Chemical Process Computer-Aided Design and Analysis. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: courses 103 (or C125), 106 (or C115), 108A, Computer Science 31. Introduction to application of some mathematical and computing methods to chemical engineering design problems; use of simulation programs as automated method of performing steady state material and energy balance calculations. Letter grading.

109. Numerical and Mathematical Methods in Chemical and Biological Engineering. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: Computer Science 31. Numerical methods for computation of solution of systems or linear and nonlinear algebraic equations, ordinary differential equations, and partial equations. Chemical and biomolecular engineering examples used throughout to illustrate application of these methods. Use of MATLAB as platform (programming environment) to write programs based on numerical methods to solve various problems arising in chemical engineering. Letter grading.

110. Intermediate Engineering Thermodynamics. (4) Lecture, four hours; outside study, eight hours. Requisite: course 102B. Principles and engineering applications of statistical and phenomenological thermodynamics. Determination of partition function in terms of simple molecular models and spectroscopic data; nonideal gases; phase transitions and adsorption; nonequilibrium thermodynamics and coupled transport processes. Letter grading.

C111. Cryogenics and Low-Temperature Processes. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: courses 102A, 102B (or Materials Science 130). Fundamentals of cryogenics and cryoengineering science pertaining to industrial low-temperature processes. Basic approaches to analysis of cryofluids and envelopes needed for operation of cryogenic systems; low-temperature behavior of matter, optimization of cryosystems and other special conditions. Concurrently scheduled with course C211. Letter grading.

C112. Polymer Processes. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: course 101A, Chemistry 30A. Formation of polymers, criteria for selecting reaction scheme, polymerization techniques, polymer characterization. Mechanical properties. Rheology of macromolecules, polymer process engineering. Diffusion in polymeric systems. Polymers in biomedical applications and in microelectronics. Concurrently scheduled with course C212. Letter grading.

113. Air Pollution Engineering. (4) Lecture, four hours; preparation, two hours; outside study, six hours. Requisites: courses 101C, 102B. Integrated approach to air pollution, including concentrations of atmospheric pollutants, air pollution standards, air pollution sources and control technology, and relationship of air quality to emission sources. Links air pollution to multimedia environmental assessment. Letter grading.

C114. Electrochemical Processes and Corrosion. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: courses 102A, 102B (or Materials Science 130). Fundamentals of electrochemistry and engineering applications to industrial electrochemical processes and metallic corrosion. Primary emphasis on fundamental approach to analysis of electrochemical and corrosion processes. Specific topics include corrosion of metals and semiconduc-

tors, electrochemical metal and semiconductor surface finishing, passivity, electrodeposition, electroless deposition, batteries and fuel cells, electrosynthesis and bioelectrochemical processes. May be concurrently scheduled with course C214. Letter grading.

C115. Biochemical Reaction Engineering. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 101C. Use of previously learned concepts of biophysical chemistry, thermodynamics, transport phenomena, and reaction kinetics to develop tools needed for technical design and economic analysis of biological reactors. May be concurrently scheduled with course CM215. Letter grading.

C116. Surface and Interface Engineering. (4) Lecture, four hours; discussion, one hour; outside study, eight hours. Requisite: Chemistry 113A. Introduction to surfaces and interfaces of engineering materials, particularly catalytic surface and thin films for solid-state electronic devices. Topics include classification of crystals and surfaces, analysis of structure and composition of crystals and their surfaces and interfaces. Examination of engineering applications, including catalytic surfaces, interfaces in microelectronics, and solid-state laser. May be concurrently scheduled with course C216. Letter grading.

C118. Multimedia Environmental Assessment. (4) Lecture, four hours; preparation, two hours; outside study, six hours. Recommended requisites: courses 101C, 102B. Pollutant sources, estimation of source releases, waste minimization, transport and fate of chemical pollutants in environment, intermedia transfers of pollutants, multimedia modeling of chemical partitioning in environment, exposure assessment and fundamentals of risk assessment, risk reduction strategies. Concurrently scheduled with course C218. Letter grading.

C119. Pollution Prevention for Chemical Processes. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 108A. Systematic methods for design of environment-friendly processes. Development of methods at molecular, unit-operation, and network levels. Synthesis of mass exchange, heat exchange, and reactor networks. Concurrently scheduled with course C219. Letter grading.

C121. Membrane Science and Technology. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: courses 101A, 101C, 103. Fundamentals of membrane science and technology, with emphasis on separations at micro, nano, and molecular/angstrom scale with membranes. Relationship between structure/morphology of dense and porous membranes and their separation characteristics. Use of nanotechnology for design of selective membranes and models of membrane transport (flux and selectivity). Examples provided from various fields/applications, including biotechnology, microelectronics, chemical processes, sensors, and biomedical devices. Concurrently scheduled with course C221. Letter grading.

C124. Cell Material Interactions. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: course CM145, Life Sciences 2, 3. Introduction to design and synthesis of biomaterials for regenerative medicine, in vitro cell culture, and drug delivery. Biological principles of cellular microenvironment and design of extracellular matrix analogs using biological and engineering principles. Biomaterials for growth factor, and DNA and siRNA delivery as therapeutics and to facilitate tissue regeneration. Use of stem cells in tissue engineering. Concurrently scheduled with course C224. Letter grading.

C125. Bioseparations and Bioprocess Engineering. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Corequisite: course 101C. Separation strategies, unit operations, and economic factors used to design processes for isolating and purifying materials like whole cells, enzymes, food additives, or pharmaceuticals that are products of biological reactors. Concurrently scheduled with course CM225. Letter grading.

CM127. Synthetic Biology for Biofuels. (4) (Same as Chemistry CM127.) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: Chemistry 153A, Life Sciences 3. Engineering microorganisms for complex phenotype is common goal of metabolic engineering and synthetic biology. Production of advanced biofuels involves designing and constructing novel metabolic networks in cells. Such efforts require profound understanding of biochemistry, protein structure, and biological regulations and are aided by tools in bioinformatics, systems biology, and molecular biology. Fundamentals of metabolic biochemistry, protein structure and function, and bioinformatics. Use of systems modeling for metabolic networks to design microorganisms for energy applications. Concurrently scheduled with course CM227. Letter grading.

CM133. Frontiers in Biotechnology. (2) (Same as Microbiology CM133.) Lecture, two hours. Requisites: Chemistry 153A and 153B, or Life Sciences 3 and 4, with grades of B or better. Integration of science and business in biotechnology. Coevolution with pharmaceutical, agricultural, and other key industries, therapeutics, crop improvement, devices, and other industry sectors. Academic research leading to licensing and founding of companies that turn research breakthroughs into marketable products. Stages of product discovery and development. Staged financing and growth: private offerings, public offerings, deals, collaborations, outsourcing. Intellectual property, regulation, pricing, profits, risks, public perception. Building value, exit strategies, mergers and acquisitions. Concurrently scheduled with course CM233. P/NP or letter grading.

C135. Advanced Process Control. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: course 107. Introduction to advanced process control. Topics include (1) Lyapunov stability for autonomous nonlinear systems including converse theorems, (2) input to state stability, interconnected systems, and small gain theorems, (3) design of nonlinear and robust controllers for various classes of nonlinear systems, (4) model predictive control of linear and nonlinear systems, (5) advanced methods for tuning of classical controllers, and (6) introduction to control of distributed parameter systems. Concurrently scheduled with course C235. Letter grading.

C140. Fundamentals of Aerosol Technology. (4) Lecture, four hours; outside study, eight hours. Requisite: course 101C. Technology of particle/gas systems with applications to gas cleaning, commercial production of fine particles, and catalysis. Particle transport and deposition, optical properties, experimental methods, dynamics and control of particle formation processes. Concurrently scheduled with course C240. Letter grading.

CM145. Molecular Biotechnology for Engineers. (4) (Same as Biomedical Engineering CM145.) Lecture, four hours; discussion, one hour; outside study, eight hours. Selected topics in molecular biology that form foundation of biotechnology and biomedical industry today. Topics include recombinant DNA technology, molecular research tools, manipulation of gene expression, directed mutagenesis and protein engineering, DNA-based diagnostics and DNA microarrays, antibody and protein-based diagnostics, genomics and bioinformatics, isolation of human genes, gene therapy, and tissue engineering. Concurrently scheduled with course CM245. Letter grading.

188. Special Courses in Chemical Engineering. (4) Seminar, four hours; outside study, eight hours. Special topics in chemical engineering for undergraduate students taught on experimental or temporary basis, such as those taught by resident and visiting faculty members. May be repeated once for credit with topic or instructor change. Letter grading.

194. Research Group Seminars: Chemical Engineering. (4) Seminar, four hours; outside study, eight hours. Designed for undergraduate students who are part of research group. Discussion of research methods and current literature in field. May be repeated for credit. Letter grading.

199. Directed Research in Chemical Engineering. (2 to 8) Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research or investigation of selected topic under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit with school approval. Individual contract required; enrollment petitions available in Office of Academic and Student Affairs. Letter grading.

Graduate Courses

200. Advanced Engineering Thermodynamics. (4) Lecture, four hours; outside study, eight hours. Requisite: course 102B. Phenomenological and statistical thermodynamics of chemical and physical systems with engineering applications. Presentation of role of atomic and molecular spectra and intermolecular forces in interpretation of thermodynamic properties of gases, liquids, solids, and plasmas. Letter grading.

201. Methods of Molecular Simulation. (4) Lecture, four hours; outside study, eight hours. Requisite: course 200 or Chemistry C223A or Physics 215A. Modern simulation techniques for classical molecular systems. Monte Carlo and molecular dynamics in various ensembles. Applications to liquids, solids, and polymers. Letter grading.

210. Advanced Chemical Reaction Engineering. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 101C, 106. Principles of chemical reactor analysis and design. Particular emphasis on simultaneous effects of chemical reaction and mass transfer on noncatalytic and catalytic reactions in fixed and fluidized beds. Letter grading.

C211. Cryogenics and Low-Temperature Processes. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: courses 102A, 102B (or Materials Science 130). Fundamentals of cryogenics and cryoengineering science pertaining to industrial low-temperature processes. Basic approaches to analysis of cryofluids and envelopes needed for operation of cryogenic systems; low-temperature behavior of matter, optimization of cryosystems and other special conditions. Concurrently scheduled with course C111. Letter grading.

C212. Polymer Processes. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: course 101A, Chemistry 30A. Formation of polymers, criteria for selecting reaction scheme, polymerization techniques, polymer characterization. Mechanical properties. Rheology of macromolecules, polymer process engineering. Diffusion in polymeric systems. Polymers in biomedical applications and in microelectronics. Concurrently scheduled with course C112. Letter grading.

C214. Electrochemical Processes and Corrosion. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: courses 102A, 102B (or Materials Science 130). Fundamentals of electrochemistry and engineering applications to industrial electrochemical processes and metallic corrosion. Primary emphasis on fundamental approach to analysis of electrochemical and corrosion processes. Specific topics include corrosion of metals and semiconductors, electrochemical metal and semiconductor surface finishing, passivity, electrodeposition, electroless deposition, batteries and fuel cells, electrosynthesis and bioelectrochemical processes. May be concurrently scheduled with course C114. Letter grading.

CM215. Biochemical Reaction Engineering. (4) (Same as Biomedical Engineering M215.) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 101C. Use of previously learned concepts of biophysical chemistry, thermodynamics, transport phenomena, and reaction kinetics to develop tools needed for technical design and economic analysis of biological reactors. May be concurrently scheduled with course C115. Letter grading.

C216. Surface and Interface Engineering. (4) Lecture, four hours; discussion, one hour; outside study, eight hours. Requisite: Chemistry 113A. Introduction to surfaces and interfaces of engineering materials, particularly catalytic surface and thin films for solid-state electronic devices. Topics include classification

of crystals and surfaces, analysis of structure and composition of crystals and their surfaces and interfaces. Examination of engineering applications, including catalytic surfaces, interfaces in microelectronics, and solid-state laser. May be concurrently scheduled with course C116. Letter grading.

217. Electrochemical Engineering. (4) Lecture, four hours; outside study, eight hours. Requisite: course C114. Transport phenomena in electrochemical systems; relationships between molecular transport, convection, and electrode kinetics, along with applications to industrial electrochemistry, fuel cell design, and modern battery technology. Letter grading.

C218. Multimedia Environmental Assessment. (4) Lecture, four hours; preparation, two hours; outside study, six hours. Recommended requisites: courses 101C, 102B. Pollutant sources, estimation of source releases, waste minimization, transport and fate of chemical pollutants in environment, intermedia transfers of pollutants, multimedia modeling of chemical partitioning in environment, exposure assessment and fundamentals of risk assessment, risk reduction strategies. Concurrently scheduled with course C118. Letter grading.

C219. Pollution Prevention for Chemical Processes. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 108A. Systematic methods for design of environment-friendly processes. Development of methods at molecular, unit-operation, and network levels. Synthesis of mass exchange, heat exchange, and reactor networks. Concurrently scheduled with course C119. Letter grading.

220. Advanced Mass Transfer. (4) Lecture, four hours; outside study, eight hours. Requisite: course 101C. Advanced treatment of mass transfer, with applications to industrial separation processes, gas cleaning, pulmonary bioengineering, controlled release systems, and reactor design; molecular and constitutive theories of diffusion, interfacial transport, membrane transport, convective mass transfer, concentration boundary layers, turbulent transport. Letter grading.

C221. Membrane Science and Technology. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: courses 101A, 101C, 103. Fundamentals of membrane science and technology, with emphasis on separations at micro, nano, and molecular/angstrom scale with membranes. Relationship between structure/morphology of dense and porous membranes and their separation characteristics. Use of nanotechnology for design of selective membranes and models of membrane transport (flux and selectivity). Examples provided from various fields/applications, including biotechnology, microelectronics, chemical processes, sensors, and biomedical devices. Concurrently scheduled with course C121. Letter grading.

222A. Stochastic Modeling and Simulation of Chemical Processes. (4) Lecture, four hours; outside study, eight hours. Introduction, definition, rationale of stochastic processes. Distribution, moments, correlation. Mean square calculus. Wiener process, white noise, Poisson process. Generalized functions. Linear systems with stochastic inputs, ergodicity. Application to chemical process modeling and simulation. Markov chains and processes. Ito integrals, stochastic difference, and differential equations. S/U or letter grading.

222B. Stochastic Optimization and Control. (4) Lecture, four hours; outside study, eight hours. Requisite: course 222A. Introduction to linear and nonlinear systems theory and estimation theory. Prediction, Kalman filter, smoothing of discrete and continuous systems. Stochastic control, systems with multiplicative noise. Applications to control of chemical processes. Stochastic optimization, stochastic linear and dynamic programming. S/U or letter grading.

223. Design for Environment. (4) Lecture, four hours; outside study, eight hours. Limited to graduate chemical engineering, materials science and engineering, or Master of Engineering program students. Design of products for meeting environmental objec-

tives; lifecycle inventories; lifecycle impact assessment; design for energy efficiency; design for waste minimization, computer-aided design tools, materials selection methods. Letter grading.

C224. Cell Material Interactions. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: course CM145, Life Sciences 2, 3. Introduction to design and synthesis of biomaterials for regenerative medicine, in vitro cell culture, and drug delivery. Biological principles of cellular microenvironment and design of extracellular matrix analogs using biological and engineering principles. Biomaterials for growth factor, and DNA and siRNA delivery as therapeutics and to facilitate tissue regeneration. Use of stem cells in tissue engineering. Concurrently scheduled with course C124. Letter grading.

CM225. Bioseparations and Bioprocess Engineering. (4) (Same as Biomedical Engineering M225.) Lecture, four hours; discussion, one hour; outside study, seven hours. Corequisite: course 101C. Separation strategies, unit operations, and economic factors used to design processes for isolating and purifying materials like whole cells, enzymes, food additives, or pharmaceuticals that are products of biological reactors. Concurrently scheduled with course C125. Letter grading.

CM227. Synthetic Biology for Biofuels. (4) (Same as Chemistry CM227.) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: Chemistry 153A, Life Sciences 3. Engineering microorganisms for complex phenotype is common goal of metabolic engineering and synthetic biology. Production of advanced biofuels involves designing and constructing novel metabolic networks in cells. Such efforts require profound understanding of biochemistry, protein structure, and biological regulations and are aided by tools in bioinformatics, systems biology, and molecular biology. Fundamentals of metabolic biochemistry, protein structure and function, and bioinformatics. Use of systems modeling for metabolic networks to design microorganisms for energy applications. Concurrently scheduled with course CM127. S/U or letter grading.

230. Reaction Kinetics. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 106, 200. Macroscopic descriptions: reaction rates, relaxation times, thermodynamic correlations of reaction rate constants. Molecular descriptions: kinetic theory of gases, models of elementary processes. Applications: absorption and dispersion measurements, unimolecular reactions, photochemical reactions, hydrocarbon pyrolysis and oxidation, explosions, polymerization. Letter grading.

231. Molecular Dynamics. (4) Lecture, four hours; outside study, eight hours. Requisite: course 106 or 110. Analysis and design of molecular-beam systems. Molecular-beam sampling of reactive mixtures in combustion chambers or gas jets. Molecular-beam studies of gas-surface interactions, including energy accommodations and heterogeneous reactions. Applications to air pollution control and to catalysis. Letter grading.

232. Combustion Processes. (4) Lecture, four hours; outside study, eight hours. Requisite: course 106, 200, or Mechanical and Aerospace Engineering C132A. Fundamentals: change equations for multicomponent reactive mixtures, rate laws. Applications: combustion, including burning of (1) premixed gases or (2) condensed fuels. Detonation. Sound absorption and dispersion. Letter grading.

CM233. Frontiers in Biotechnology. (4) (Same as Microbiology CM233.) Lecture, three hours. Requisites: Chemistry 153A and 153B, or Life Sciences 3 and 4, with grades of B or better. Integration of science and business in biotechnology. Coevolution with pharmaceutical, agricultural, and other key industries, therapeutics, crop improvement, devices, and other industry sectors. Academic research leading to licensing and founding of companies that turn research breakthroughs into marketable products. Stages of product discovery and development. Staged financing and growth: private offerings, public offerings, deals, collaborations, outsourcing. Intellectual property, reg-

ulation, pricing, profits, risks, public perception. Building value, exit strategies, mergers and acquisitions. Concurrently scheduled with course CM133. S/U or letter grading.

234. Plasma Chemistry and Engineering. (4) Lecture, four hours; outside study, eight hours. Designed for graduate chemistry or engineering students. Application of chemistry, physics, and engineering principles to design and operation of plasma and ion-beam reactors used in etching, deposition, oxidation, and cleaning of materials. Examination of atomic, molecular, and ionic phenomena involved in plasma and ion-beam processing of semiconductors, etc. Letter grading.

C235. Advanced Process Control. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisite: course 107. Introduction to advanced process control. Topics include (1) Lyapunov stability for autonomous nonlinear systems including converse theorems, (2) input to state stability, interconnected systems, and small gain theorems, (3) design of nonlinear and robust controllers for various classes of nonlinear systems, (4) model predictive control of linear and nonlinear systems, (5) advanced methods for tuning of classical controllers, and (6) introduction to control of distributed parameter systems. Concurrently scheduled with course C135. Letter grading.

236. Chemical Vapor Deposition. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 210, C216. Chemical vapor deposition is widely used to deposit thin films that comprise microelectronic devices. Topics include reactor design, transport phenomena, gas and surface chemical kinetics, structure and composition of deposited films, and relationship between process conditions and film properties. Letter grading.

C240. Fundamentals of Aerosol Technology. (4) Lecture, four hours; outside study, eight hours. Requisite: course 101C. Technology of particle/gas systems with applications to gas cleaning, commercial production of fine particles, and catalysis. Particle transport and deposition, optical properties, experimental methods, dynamics and control of particle formation processes. Concurrently scheduled with course C140. Letter grading.

CM245. Molecular Biotechnology for Engineers. (4) (Same as Biomedical Engineering CM245.) Lecture, four hours; discussion, one hour; outside study, eight hours. Selected topics in molecular biology that form foundation of biotechnology and biomedical industry today. Topics include recombinant DNA technology, molecular research tools, manipulation of gene expression, directed mutagenesis and protein engineering, DNA-based diagnostics and DNA microarrays, antibody and protein-based diagnostics, genomics and bioinformatics, isolation of human genes, gene therapy, and tissue engineering. Concurrently scheduled with course CM145. Letter grading.

246. Systems Biology: Intracellular Network Identification and Analysis. (4) Lecture, four hours; outside study, eight hours. Requisites: course CM245, Life Sciences 1, 2, 3, 4, Mathematics 31A, 31B, 32A, 33B. Systems approach to intracellular network identification and analysis. Transcriptional regulatory networks, protein networks, and metabolic networks. Data from genome sequencing, large-scale expression analysis, and other high-throughput techniques provide bases for systems identification and analysis. Discussion of gene-metabolic network synthesis. Letter grading.

250. Computer-Aided Chemical Process Design. (4) Lecture, four hours; outside study, eight hours. Requisite: course 108B. Application of optimization methods in chemical process design; computer aids in process engineering; process modeling; systematic flowsheet invention; process synthesis; optimal design and operation of large-scale chemical processing systems. Letter grading.

260. Non-Newtonian Fluid Mechanics. (4) Lecture, four hours; outside study, eight hours. Requisite: course 102A. Principles of non-Newtonian fluid mechanics. Stress constitutive equations. Rheology of

CHEMISTRY AND BIOCHEMISTRY

College of Letters and Science

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Harold G. Martinson, Ph.D., *Chair*

Professors

David B. Bensimon, Ph.D.
James U. Bowie, Ph.D.
Guillaume F. Chanfreau, Ph.D.
Catherine F. Clarke, Ph.D.
Steven G. Clarke, Ph.D.
Robert T. Clubb, Ph.D.
Albert J. Courey, Ph.D.
Timothy J. Deming, Ph.D.
David S. Eisenberg, D.Phil. (*Paul D. Boyer Professor of Molecular Biology and Biochemistry*)
Julie F. Feigon, Ph.D.
Peter M. Felker, Ph.D.
Miguel A. Garcia-Garibay, Ph.D.
Robin L. Garrell, Ph.D.
William M. Gelbart, Ph.D.
James K. Gimzewski, Ph.D.
James W. Gober, Ph.D.
Jay D. Gralla, Ph.D.
Patrick Harran, Ph.D. (*D.J. and J.M. Cram Professor of Organic Chemistry*)
Kendall N. Houk, Ph.D. (*Saul Winstein Professor of Organic Chemistry*)
Wayne L. Hubbell, Ph.D. (*Jules Stein Professor of Ophthalmology*)
Michael E. Jung, Ph.D.
Richard B. Kaner, Ph.D.
Carla M. Koehler, Ph.D.
Christopher J. Lee, Ph.D.
Raphael D. Levine, Ph.D.
Joseph A. Loo, Ph.D.
Harold G. Martinson, Ph.D.
Thomas G. Mason, Ph.D.
Sabeeha Merchant, Ph.D.
Daniel Neuhauser, Ph.D.
C. Kumar N. Patel, Ph.D.
Emil Reissler, Ph.D.
Yves F. Rubin, Ph.D.
Benjamin J. Schwartz, Ph.D.
Sarah H. Tolbert, Ph.D.
Joan S. Valentine, Ph.D.
John T. Wasson, Ph.D.
Paul S. Weiss, Ph.D. (*Fred Kavli Professor of Nanosystems Sciences*)
Richard L. Weiss, Ph.D.
Shimon Weiss, D.Sc. (*Dean M. Willard Professor of Chemistry*)
Omar M. Yaghi, Ph.D. (*Irving and Jean Stone Endowed Professor of Physical Science*)
Todd O. Yeates, Ph.D.
Jeffrey I. Zink, Ph.D.

Professors Emeriti

Frank A.L. Anet, Ph.D.
Daniel E. Atkinson, Ph.D.
Kyle D. Bayes, Ph.D.
Paul D. Boyer, Ph.D.
Richard E. Dickerson, Ph.D.
Mostafa A. El-Sayed, Ph.D.
Clifford S. Garner, Ph.D., D.Sc.
E. Russell Hardwick, Ph.D.
M. Frederick Hawthorne, Ph.D. (*University Professor*)
Herbert D. Kaesz, Ph.D.
Charles M. Knobler, Ph.D.
Howard Reiss, Ph.D.
Verne N. Schumaker, Ph.D.

polymeric liquids and dispersed systems. Applications in viscometry, polymer processing, biorheology, oil recovery, and drag reduction. Letter grading.

270. Principles of Reaction and Transport Phenomena. (4) Lecture, four hours; laboratory, eight hours. Fundamentals in transport phenomena, chemical reaction kinetics, and thermodynamics at molecular level. Topics include Boltzmann equation, microscopic chemical kinetics, transition state theory, and statistical analysis. Examination of engineering applications related to state-of-art research areas in chemical engineering. Letter grading.

270R. Advanced Research in Semiconductor Manufacturing. (6) Laboratory, nine hours; outside study, nine hours. Limited to graduate chemical engineering students in M.S. semiconductor manufacturing option. Supervised research in processing semiconductor materials and devices. Letter grading.

M280A. Linear Dynamic Systems. (4) (Same as Electrical Engineering M240A and Mechanical and Aerospace Engineering M270A.) Lecture, four hours; outside study, eight hours. Requisite: Electrical Engineering 141 or Mechanical and Aerospace Engineering 171A. State-space description of linear time-invariant (LTI) and time-varying (LTV) systems in continuous and discrete time. Linear algebra concepts such as eigenvalues and eigenvectors, singular values, Cayley/Hamilton theorem, Jordan form; solution of state equations; stability, controllability, observability, realizability, and minimality. Stabilization design via state feedback and observers; separation principle. Connections with transfer function techniques. Letter grading.

M280C. Optimal Control. (4) (Same as Electrical Engineering M240C and Mechanical and Aerospace Engineering M270C.) Lecture, four hours; outside study, eight hours. Requisite: Electrical Engineering 240B or Mechanical and Aerospace Engineering 270B. Applications of variational methods, Pontryagin maximum principle, Hamilton/Jacobi/Bellman equation (dynamic programming) to optimal control of dynamic systems modeled by nonlinear ordinary differential equations. Letter grading.

M282A. Nonlinear Dynamic Systems. (4) (Same as Electrical Engineering M242A and Mechanical and Aerospace Engineering M272A.) Lecture, four hours; outside study, eight hours. Requisite: course M280A or Electrical Engineering M240A or Mechanical and Aerospace Engineering M270A. State-space techniques for studying solutions of time-invariant and time-varying nonlinear dynamic systems with emphasis on stability. Lyapunov theory (including converse theorems), invariance, center manifold theorem, input-to-state stability and small-gain theorem. Letter grading.

283C. Analysis and Control of Infinite Dimensional Systems. (4) Lecture, four hours; outside study, eight hours. Requisites: courses M280A, M282A. Designed for graduate students. Introduction to advanced dynamical analysis and controller synthesis methods for nonlinear infinite dimensional systems. Topics include (1) linear operator and stability theory (basic results on Banach and Hilbert spaces, semi-group theory, convergence theory in function spaces), (2) nonlinear model reduction (linear and nonlinear Galerkin method, proper orthogonal decomposition), (3) nonlinear and robust control of nonlinear hyperbolic and parabolic partial differential equations (PDEs), (4) applications to transport-reaction processes. Letter grading.

284A. Optimization in Vector Spaces. (4) Lecture, four hours; outside study, eight hours. Requisites: Electrical Engineering 236A, 236B. Review of functional analysis concepts. Convexity, convergence, continuity. Minimum distance problems for Hilbert and Banach spaces. Lagrange multiplier theorem in Banach spaces. Nonlinear duality theory. Letter grading.

290. Special Topics. (2 to 4) Seminar, four hours. Requisites for each offering announced in advance by department. Advanced and current study of one or more aspects of chemical engineering, such as chemical process dynamics and control, fuel cells and batteries, membrane transport, advanced chemical

engineering analysis, polymers, optimization in chemical process design. May be repeated for credit with topic change. Letter grading.

M297. Seminar: Systems, Dynamics, and Control Topics. (2) (Same as Electrical Engineering M248S and Mechanical and Aerospace Engineering M299A.) Seminar, two hours; outside study, six hours. Limited to graduate engineering students. Presentations of research topics by leading academic researchers from fields of systems, dynamics, and control. Students who work in these fields present their papers and results. S/U grading.

298A-298Z. Research Seminars. (2 to 4 each) Seminar, to be arranged. Requisites for each offering announced in advance by department. Lectures, discussions, student presentations, and projects in areas of current interest. May be repeated for credit. S/U grading.

299. Departmental Seminar. (2) Seminar, two hours. Limited to graduate chemical engineering students. Seminars by leading academic and industrial chemical engineers on development or application of recent technological advances in discipline. May be repeated for credit. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495A. Teaching Assistant Training Seminar. (2) Seminar, two hours; outside study, four hours; one-day intensive training at beginning of Fall Quarter. Limited to graduate chemical engineering students. Required of all new teaching assistants. Special seminar on communicating chemical engineering principles, concepts, and methods; teaching assistant preparation, organization, and presentation of material, including use of grading, advising, and rapport with students. S/U grading.

495B. Teaching with Technology for Teaching Assistants. (2) Seminar, two hours; outside study, four hours. Limited to graduate chemical engineering students. Designed for teaching assistants interested in learning more about effective use of technology and ways to incorporate that technology into their classrooms for benefit of student learning. S/U grading.

596. Directed Individual or Tutorial Studies. (2 to 8) Tutorial, to be arranged. Limited to graduate chemical engineering students. Petition forms to request enrollment may be obtained from assistant dean, Graduate Studies. Supervised investigation of advanced technical problems. S/U grading.

597A. Preparation for M.S. Comprehensive Examination. (2 to 12) Tutorial, to be arranged. Limited to graduate chemical engineering students in M.S. semiconductor manufacturing option. Reading and preparation for M.S. comprehensive examination. S/U grading.

597B. Preparation for Ph.D. Preliminary Examinations. (2 to 16) Seminar, to be arranged. Limited to graduate chemical engineering students. S/U grading.

597C. Preparation for Ph.D. Oral Qualifying Examination. (2 to 16) Tutorial, to be arranged. Limited to graduate chemical engineering students. Preparation for oral qualifying examination, including preliminary research on dissertation. S/U grading.

598. Research for and Preparation of M.S. Thesis. (2 to 12) Tutorial, to be arranged. Limited to graduate chemical engineering students. Supervised independent research for M.S. candidates, including thesis prospectus. S/U grading.

599. Research for and Preparation of Ph.D. Dissertation. (2 to 16) Tutorial, to be arranged. Limited to graduate chemical engineering students. Usually taken after students have been advanced to candidacy. S/U grading.

Robert L. Scott, Ph.D.
 Roberts A. Smith, Ph.D.
 J. Fraser Stoddart, Ph.D.
 Charles E. Strouse, Ph.D.
 Charles A. West, Ph.D.

Associate Professors

Delroy A. Baugh, Ph.D.
 Ohyun Kwon, Ph.D.
 Alexander J. Levine, Ph.D.
 Yung-Ya Lin, Ph.D.
 Heather D. Maynard, Ph.D.
 Craig A. Merlic, Ph.D.

Assistant Professors

Anastassia N. Alexandrova, Ph.D.
 Louis S. Bouchard, Ph.D.
 Paula L. Diaconescu, Ph.D.
 Xiangfeng Duan, Ph.D. (*Howard Reiss Career Development Professor*)
 Neil K. Garg, Ph.D.
 Margot E. Quinlan, Ph.D. (*Alexander and Renee Kolin Endowed Professor of Molecular Biology and Biophysics*)
 Jorge Torres, Ph.D. (*John McTague Career Development Professor of Chemistry and Biochemistry*)

Senior Lecturer S.O.E.

Arlene A. Russell, Ph.D.

Senior Lecturers

Steven A. Hardinger, Ph.D.
 Laurence Lavelle, Ph.D.

Lecturers

Maher M. Henary, Ph.D.
 Eric R. Scerri, Ph.D.

Adjunct Professor

R. Stanley Williams, Ph.D.

Adjunct Assistant Professor

Parag K. Mallick, Ph.D.

Scope and Objectives

Chemistry is concerned with the composition, structure, and properties of substances, the transformations of these substances into others by reactions, and the kinds of energy changes that accompany these reactions. The department is organized in four interrelated and overlapping subdisciplines that deal primarily with the chemistry of inorganic substances (inorganic chemistry), the chemistry of carbon compounds (organic chemistry), the chemistry of living systems (biochemistry), and the physical behavior of substances in relation to their structures and chemical properties (physical chemistry).

Undergraduate Study

Admission

Students entering UCLA directly from high school who declare a Chemistry or Biochemistry major at the time of application are automatically admitted to that major.

UCLA students who wish to enter one of the majors must have a minimum grade of C– in each of the preparation for the major courses completed and a combined grade-point average of at least 2.0 in those courses. Grades in any completed courses for the major must also average at least 2.0.

Transfer Students

Transfer applicants to the departmental majors with 90 or more units must complete the follow-

ing introductory courses prior to admission to UCLA: one year of general chemistry with laboratory for majors, one and one half years of calculus, and either one year of calculus-based physics with laboratory or one year of organic chemistry for majors. Biochemistry majors must also complete courses equivalent to Life Sciences 2 and 3; Chemistry majors should have completed the equivalent of Mathematics 32B.

Entering transfer students who have successfully completed a year course (including laboratory) in general college chemistry intended for science and engineering students should enter course 30A. Transfer students should consult the Undergraduate Advising Office in 4009 Young Hall for assistance with the articulation of transfer coursework.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

Advanced Placement in Chemistry

Students who have taken the Advanced Placement (AP) Chemistry Test and obtained a score of 4 or 5 receive 8 units of chemistry credit and may petition for chemistry and biochemistry equivalency, or may take course 20A at UCLA. If students received a score of 3 on the AP Chemistry Test, they receive 8 units of chemistry credit but no course equivalency.

Credit Limitations

Students may not take or repeat a chemistry or biochemistry course for credit if it is a requisite for a more advanced course for which they already have credit. This applies in particular to the repetition of courses (e.g., if students wish to repeat Chemistry and Biochemistry 20A, they must do so before completing course 20B).

Undergraduate Majors

The department offers three majors: Chemistry (with concentrations in chemistry and physical chemistry), Biochemistry, and General Chemistry. The Chemistry and Biochemistry majors are designed to prepare students for graduate studies in each field, for entry into professional schools in the health sciences, and for careers in industries and businesses that depend on chemically and biochemically based technology. The General Chemistry major is intended for students who wish to acquire considerable chemical background in preparation for careers outside chemistry.

Each course used to fulfill any of the requirements for any of the departmental majors must be taken for a letter grade. Seminar courses, individual study courses, and research courses (e.g., 194, 199) may not be applied toward the requirements for the majors.

Requirements for the majors are outlined below. For additional information, contact the Undergraduate Advising Office in 4009 Young Hall.

Chemistry B.S.

The Chemistry major is for students who intend to pursue a career in chemistry.

Chemistry Concentration

Preparation for the Major

Required: Chemistry and Biochemistry 20A, 20B, 20L, 30A, 30AL, 30B, 30BL, 30C, 30CL; Mathematics 31A, 31B, 32A, 32B, 33B; Physics 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), 4BL.

The Major

Required: Chemistry and Biochemistry 110A, either 110B or C113B, 113A, 114 (or 114H), either 136 or 144, 153A, 153L, 171, 172, and two other upper division or graduate courses in the department, including at least one additional laboratory course from 136, 144, 154, C174, 184, C185.

Physical Chemistry Concentration

The physical chemistry concentration is designed primarily for students who are interested in attending graduate school in physical chemistry/physics.

Preparation for the Major

Required: Chemistry and Biochemistry 20A, 20B, 20L, 30A, 30AL, 30B, 30BL; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), 4BL.

The Major

Required: Chemistry and Biochemistry 110A, 110B, 113A, C113B, 114 (or 114H), 153A, 171, 172; one additional upper division chemistry, electrical engineering, or physics laboratory course; and three elective upper division or graduate courses approved by the physical chemistry adviser. Refer to the Undergraduate Advising Office website at <http://www.chemistry.ucla.edu/pages/programs> for a list of approved electives.

By the junior year, students are strongly encouraged to join a research group within the physical chemistry division to obtain firsthand experience with state-of-the-art physical chemistry research.

Biochemistry B.S.

The Biochemistry major is for students preparing for careers in biochemistry or other fields requiring extensive preparation in both chemistry and biology.

Preparation for the Major

Required: Chemistry and Biochemistry 20A, 20B, 20L, 30A, 30AL, 30B, 30BL, 30C, 30CL; Life Sciences 2, 3, 4; Mathematics 31A, 31B, 32A (33A strongly recommended); Physics 1A, 1B, and 1C (or 1AH, 1BH, and 1CH) and 4BL, or 6A, 6B, and 6C.

The Major

Required: Chemistry and Biochemistry 110A, 153A, 153B, 153C, 153L, 154, 156, 171; one additional upper division or graduate course in chemistry and biochemistry; and four elective upper division or graduate courses (16 units) approved by the undergraduate adviser (Micro-

biology, Immunology, and Molecular Genetics 101 and 101L highly recommended). Refer to the Undergraduate Advising Office website at <http://www.chemistry.ucla.edu/pages/programs> for a list of approved electives.

General Chemistry B.S.

The General Chemistry major is for students who wish to acquire considerable chemical background in preparation for careers outside chemistry. The requirements are accordingly quite flexible. The major may be appropriate for some students who plan to enter professional schools, such as those of pharmacy, dentistry, or public health. This major cannot be taken as part of a double major. Students must declare the major before reaching 135 units.

Preparation for the Major

Required: Chemistry and Biochemistry 20A, 20B, 20L, 30A, 30AL, 30B, 30BL, 30C, 30CL; Mathematics 31A, 31B, 32A, 33B; Physics 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), 4BL.

Students must complete the preparation courses with at least a 2.0 grade-point average.

The Major

Required: Chemistry and Biochemistry 110A, 153A, 153L, 171; three additional upper division courses in the department (at least one must be a laboratory course); six additional upper division courses. A 2.0 grade-point average is required in all upper division courses in the department. Acceptance into the major is based on an original written proposal that is coherent in terms of student interests and objectives. The proposal should specify which courses students plan to apply toward the major and requires the approval of the faculty adviser.

Honors Program

Admission

The honors program provides exceptional Chemistry and Biochemistry Department majors with the opportunity to do research culminating in an honors thesis. Junior and senior majors who have completed all university-level coursework, including all preparation courses and requirements for the major, with an overall grade-point average of 3.0 or better and a 3.5 GPA or better in the required major courses, may apply for admission. Students must have the sponsorship of an approved faculty adviser.

For further information and application forms, students should consult the Undergraduate Advising Office, 4009 Young Hall, early in their educational planning. Completed applications must be submitted at least two weeks prior to the term in which students plan to begin the honors program.

Requirements

The core of the program consists of at least one approved undergraduate seminar course from Chemistry and Biochemistry 193A or 193B and three research courses (12 units minimum) from 196A, 196B, or 199, culminating in a thesis.

To qualify for graduation with departmental honors, students must satisfactorily complete all requirements for the honors program and the major and obtain a cumulative grade-point average of 3.5 or better in coursework required for the major. On recommendation of the faculty sponsor, and with the approval of the thesis by the departmental honors committee, students are awarded no honors, honors, or highest honors.

Students who have a grade-point average of 3.6 or better, both overall and in the major, and demonstrated exceptional accomplishment on the research thesis are awarded highest honors at the discretion of the departmental honors committee.

Computing Specialization

Majors in Chemistry and Biochemistry may select a specialization in Computing by (1) satisfying all the requirements for a bachelor's degree in the specified major, (2) completing Program in Computing 10A, 10B, and one course from 10C, 15, 20A, 30, or 60, and (3) completing two computational chemistry courses from Chemistry and Biochemistry C126A, C145, CM160A. Courses need to be completed with a combined grade-point average of at least 2.0. Students must petition for admission to the program and are advised to do so after they complete Program in Computing 10B (petitions should be filed in the Undergraduate Office). Students graduate with a bachelor's degree in their major and a specialization in Computing.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Chemistry and Biochemistry offers Master of Science (M.S.), Candidate in Philosophy (C.Phil.), and Doctor of Philosophy (Ph.D.) degrees in Chemistry and Master of Science (M.S.), Candidate in Philosophy (C.Phil.), and Doctor of Philosophy (Ph.D.) degrees in Biochemistry and Molecular Biology.

Chemistry and Biochemistry

Lower Division Courses

2. Introductory Chemistry. (4) Lecture, two hours; discussion, two hours. Not open to students with credit for course 14A or 20A. Concept of submicroscopic world of chemistry, ranging from protons to proteins in subject matter. P/NP or letter grading.

14A. Atomic and Molecular Structure, Equilibria, Acids, and Bases. (4) Lecture, three hours; discussion, one hour. Preparation: high school chemistry or equivalent background and three and one-half years of high school mathematics. Not open to students with credit for course 20A. Introduction to physical and

general chemistry principles; atomic structure based on quantum mechanics; atomic properties; trends in periodic table; chemical bonding (Lewis structures, VSEPR theory, hybridization, and molecular orbital theory); gaseous and aqueous equilibria; properties of inorganic and organic acids, bases, buffers; titrations. P/NP or letter grading.

14B. Thermodynamics, Electrochemistry, Kinetics, and Organic Chemistry. (4) Lecture, three hours; discussion, one hour. Enforced prerequisite: course 14A with grade of C- or better. Enforced corequisite: Mathematics 3A or 31A. Not open to students with credit for course 20A, 20B, or 30A. Phase changes; thermochemistry; first, second, and third laws of thermodynamics; free energy changes; electrochemistry and its role as energy source; chemical kinetics, including catalysis, reaction mechanisms, and enzymes; coordination compounds; general classes and naming of organic molecules; structure, conformations, and relative energies of organic molecules; application of thermodynamics and kinetics to organic and biochemical reactions; use of molecular modeling software to illustrate molecular structures and their relative energies. P/NP or letter grading.

14BL. General and Organic Chemistry Laboratory I. (3) Lecture, one hour; laboratory, three hours. Enforced prerequisite: course 14A with grade of C- or better. Enforced corequisite: course 14B. Not open to students with credit for course 20L. Introduction to volumetric, spectrophotometric, and potentiometric analysis. Use and preparation of buffers and pH meters. Synthesis and kinetics techniques using compounds of interest to students in life sciences. P/NP or letter grading.

14C. Structure of Organic Molecules. (4) Lecture, three hours; discussion, one hour. Enforced prerequisite: course 14B with grade of C- or better. Not open to students with credit for course 30A. Continuing studies in structure of organic molecules, with emphasis on biological applications. Resonance, stereochemistry, conjugation, and aromaticity; spectroscopy (NMR, IR, and mass spectrometry); introduction to effects of structure on physical and chemical properties; survey of biomolecular structure. P/NP or letter grading.

14CL. General and Organic Chemistry Laboratory II. (4) Lecture, one hour; laboratory, six hours. Enforced prerequisites: courses 14B and 14BL, with grades of C- or better. Enforced corequisite: course 14C. Synthesis and analysis of compounds; purification by extraction, chromatography, recrystallization, and sublimation; characterization by mass spectroscopy, UV, NMR, and IR spectroscopy, optical activity, electrochemistry, pH titration. P/NP or letter grading.

14D. Organic Reactions and Pharmaceuticals. (4) Lecture, three hours; discussion, one hour. Enforced prerequisite: course 14C with grade of C- or better. Organic reactions, nucleophilic and electrophilic substitutions and additions; electrophilic aromatic substitutions, carbonyl reactions, catalysis, molecular basis of drug action, and organic chemistry of pharmaceuticals. P/NP or letter grading.

17. Chemical Principles. (No credit) Lecture, four hours; laboratory, two hours. Chemistry 17 displaces 4 units on student's Study List but yields no credit toward degree. Introduction to chemical principles: numbers, measurements, chemical calculations, gas laws, solutions, acids, bases, and salts, molecular structure, and nomenclature. Collaborative learning and problem solving; introduction to chemistry laboratory practice. No grading.

20A. Chemical Structure. (4) Lecture, three hours; discussion, one hour. Preparation: high school chemistry or equivalent background and three and one-half years of high school mathematics. Recommended: high school physics. First term of general chemistry. Survey of chemical processes, quantum chemistry, atomic and molecular structure and bonding, molecular spectroscopy. P/NP or letter grading.

20AH. Chemical Structure (Honors). (4) Lecture, three hours; discussion, one hour. Preparation: high school chemistry or equivalent background, high

school physics, and three and one-half years of high school mathematics. Honors course parallel to course 20A. P/NP or letter grading.

20B. Chemical Energetics and Change. (4) Lecture, three hours; discussion, one hour. Enforced requisites: course 20A or 20AH, and Mathematics 31A, with grades of C- or better. Second term of general chemistry. Intermolecular forces and organization, phase behavior, chemical thermodynamics, solutions, equilibria, reaction rates and laws. P/NP or letter grading.

20BH. Chemical Energetics and Change (Honors). (4) Lecture, three hours; discussion, one hour. Enforced requisites: course 20A and Mathematics 31A, with grades of B+ or better, or 20AH with grade of B or better. Honors course parallel to course 20B. Letter grading.

20L. General Chemistry Laboratory. (3) Lecture, one hour; laboratory, three hours. Enforced requisite: course 20A with grade of C- or better. Enforced corequisite: course 20B. Use of balance, volumetric techniques, volumetric and potentiometric analysis; Beer's law, applications for environmental analysis and materials science. P/NP or letter grading.

30A. Organic Chemistry I: Structure and Reactivity. (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 20B with grade of C- or better. First term of organic chemistry for Chemistry, Biochemistry, and engineering majors. Covalent bonding, shapes, stereochemistry, and acid/base properties of organic molecules. Properties, synthesis, and reactions of alkanes, cycloalkanes, alkenes, and alkynes. SN2, SN1, elimination, and radical reactions. P/NP or letter grading.

30AH. Organic Chemistry I: Structure and Reactivity (Honors). (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 20B or 20BH, with grade of B+ or better. Honors course parallel to course 30A. P/NP or letter grading.

30AL. General Chemistry Laboratory II. (4) Lecture, one hour; laboratory, six hours. Enforced requisites: courses 20B (or 20BH) and 20L, with grades of C- or better. Enforced corequisite: course 30A or 30AH. Qualitative and quantitative analysis of chemical reactions and compounds, kinetics, separations, and spectroscopy. P/NP or letter grading.

30B. Organic Chemistry II: Reactivity, Synthesis, and Spectroscopy. (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 30A or 30AH, with grade of C- or better. Second term of organic chemistry for Chemistry, Biochemistry, and engineering majors. Properties, synthesis, and reactions of alcohols, ethers, sulfur compounds, aldehydes, ketones, carboxylic acids, and carboxylic acid derivatives. Organometallic compounds. Organic spectroscopy, including mass spectrometry, infrared spectroscopy, and proton and carbon nuclear magnetic resonance spectroscopy. P/NP or letter grading.

30BL. Organic Chemistry Laboratory I. (3) Lecture, one hour; laboratory, four hours. Enforced requisites: courses 30A (or 30AH) and 30AL, with grades of C- or better. Enforced corequisite: course 30B. Basic experimental techniques in organic synthesis (distillation, extraction, crystallization, and performing reactions) and organic analytical chemistry (melting and boiling point, refractive index, chromatography, IR, NMR, GC). Single and multistep synthesis of known organic molecules on microscale level. P/NP or letter grading.

30C. Organic Chemistry III: Reactivity, Synthesis, and Biomolecules. (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 30B with grade of C- or better. Third term of organic chemistry for Chemistry, Biochemistry, and engineering majors. Chemistry of enolates, enamines, dicarbonyl compounds, and amines. Molecular orbital theory and conjugated pi systems; UV/vis spectroscopy. Aromaticity and reactions of aromatic molecules. Heterocycles, pericyclic reactions, carbohydrates, and lipids. P/NP or letter grading.

30CL. Organic Chemistry Laboratory II. (4) Lecture, two hours; laboratory, six hours. Enforced requisites: courses 30B and 30BL, with grades of C- or

better. Enforced corequisite: course 30C. Modern techniques in synthetic organic and analytical organic chemistry. Semi-preparative scale, multistep synthesis of organic and organometallic molecules, including asymmetric catalysts. One- and two-dimensional multinuclear NMR techniques. Written reports and proposals. P/NP or letter grading.

88A-88Z. Lower Division Seminars. (2-2) Seminar, two hours. Limited to freshmen/sophomores. General introduction to frontiers of molecular sciences or intensive exploration of particular theme or topic. Consult *Schedule of Classes* for topics and instructors. P/NP or letter grading:

88A. Serendipity in Science. (2) Seminar, two hours. Limited to 20 freshmen. Inquiry into unexpected discoveries in science that have had significant impact on society and analysis of circumstances that brought these about, beginning with discovery of helium in sun by Janssen in 1868 (using newly developed field of spectroscopy). Discovery of X rays by Röntgen in 1895 and of radioactivity by Becquerel in 1896. Other topics include discoveries important to medicine, such as penicillin by Fleming in 1928 and *cis-platin* by Rosenberg in 1969. P/NP or letter grading.

96. Special Courses in Chemistry. (1 to 4) Tutorial, to be arranged. May be repeated for maximum of 8 units. P/NP or letter grading.

98XA. PEERS Collaborative Learning Workshops for Life Sciences Majors. (1) Laboratory, three hours. Corequisite: associated undergraduate lecture course in chemistry and biochemistry for life sciences majors. Development of intuition and problem-solving skills in collaborative learning environment. May be repeated four times, but only 1 unit may be applied toward graduation. P/NP grading.

98XB. PEERS Collaborative Learning Workshops for Physical Sciences and Engineering Majors. (1) Laboratory, three hours. Corequisite: associated undergraduate lecture course in chemistry and biochemistry for physical sciences and engineering majors. Development of intuition and problem-solving skills in collaborative learning environment. May be repeated four times, but only 1 unit may be applied toward graduation. P/NP grading.

Upper Division Courses

103. Environmental Chemistry. (4) Lecture, four hours; discussion, one hour. Requisites: courses 30B, 30BL, 110A, 153A (or 153AH), 153L. Chemical aspects of air and water pollution, solid waste disposal, energy resources, and pesticide effects. Chemical reactions in environment and effect of chemical processes on environment. P/NP or letter grading.

M104. Environmental Chemistry Laboratory. (4) (Same as Atmospheric and Oceanic Sciences M140.) Lecture, two hours; laboratory, three hours. Requisite: course 20B. Laboratory experience for students who wish to pursue career in environmental science. Essential laboratory procedures to be performed in context of timely environmental issues involving smog formation, acid rain, and ozone depletion. Hands-on experience using scientific instruments and analytical techniques appropriate for environmental assessment. P/NP or letter grading.

C105. Introduction to Chemistry of Biology. (3) Lecture, three hours. Enforced requisite: course 153A with grade of C- or better. Introduction to chemical biology. Topics include computational chemical biology, utility of synthesis in biochemical research, peptidomimetics, designed reagents for cellular imaging, natural product biosynthesis, protein engineering and directed evolution, cell biology of metal ions, imaging metal ions in cells, metal-containing drugs. Concurrently scheduled with course CM205A. P/NP or letter grading.

C108. Mass Spectrometry for Chemists and Biochemists. (2) Lecture, one hour; laboratory, four hours. Requisite: course 153A. Introduction to principles and practice of organic and inorganic mass spectrometry. Topics include EI, CI, ICPMS, GC/MS, LC/

MS, ESI, MALDI, MS/MS protein identification, and proteomics. Concurrently scheduled with course C208. P/NP or letter grading.

110A. Physical Chemistry: Chemical Thermodynamics. (4) Lecture, three hours; discussion, one hour; tutorial, one hour. Requisites: course 20B, Mathematics 32A or 3C (for life sciences majors), Physics 1A, 1B, and 1C (may be taken concurrently), or 1AH, 1BH, and 1CH (may be taken concurrently), or 6A, 6B, and 6C (may be taken concurrently). Fundamentals of thermodynamics, chemical and phase equilibria, thermodynamics of solutions, electrochemistry. P/NP or letter grading.

110B. Physical Chemistry: Introduction to Statistical Mechanics and Kinetics. (4) Lecture, three hours; discussion, one hour; tutorial, one hour. Requisites: courses 110A, 113A, Mathematics 32B. Kinetic theory of gases, principles of statistical mechanics, statistical thermodynamics, equilibrium structure and free energy, relaxation and transport phenomena, macroscopic chemical kinetics, molecular-level reaction dynamics. P/NP or letter grading.

113A. Physical Chemistry: Introduction to Quantum Mechanics. (4) Lecture, three hours; discussion, one hour; tutorial, one hour. Requisites: course 20B, Mathematics 32A, 32B, 33B, Physics 1A, 1B, and 1C, or 1AH, 1BH, and 1CH, or 6A, 6B, and 6C, with grades of C- or better. Departure from classical mechanics: Schrödinger versus Newton equations; model systems: particle-in-box, harmonic oscillator, rigid rotor, and hydrogen atom; approximation methods: perturbation and variational methods; many-electron atoms, spin, and Pauli principle, chemical bonding. P/NP or letter grading.

C113B. Physical Chemistry: Introduction to Molecular Spectroscopy. (4) Lecture, three hours; discussion, one hour; tutorial, one hour. Requisite: course 113A. Interaction of radiation with matter, microwave spectroscopy, infrared and Raman spectroscopy, vibrations in polyatomic molecules, electronic spectroscopy, magnetic resonance spectroscopy. Concurrently scheduled with course C213B. P/NP or letter grading.

114. Physical Chemistry Laboratory. (5) Lecture, two hours; laboratory, eight hours. Enforced requisites: courses 30AL, 110A, and 113A, with grades of C- or better. Enforced corequisite: course 110B or C113B. Lectures include techniques of physical measurement, error analysis and statistics, special topics. Laboratory includes spectroscopy, thermodynamic measurements, and chemical dynamics. P/NP or letter grading.

114H. Physical Chemistry Laboratory (Honors). (5) Lecture, two hours; laboratory, eight hours. Enforced requisites: courses 30AL, 110A, and 113A, with grades of B or better. Enforced corequisite: course 110B or C113B. Lectures include techniques of physical measurement, error analysis and statistics, special topics. Laboratory includes topics in physical chemistry to be selected in consultation with instructor. P/NP or letter grading.

C115A-C115B. Quantum Chemistry. (4-4) Lecture, four hours; discussion, one hour. Requisites: course 113A, Mathematics 31A, 31B, 32A, 32B, 33A, with grades of C- or better. Recommended: knowledge of differential equations equivalent to Mathematics 134 or 135 or Physics 131 and of analytic mechanics equivalent to Physics 105A. Course C115A or Physics 115B with grade of C- or better is requisite to C115B. Students entering course C115A are normally expected to take course C115B in following term. Designed for chemistry students with serious interest in quantum chemistry. Postulates and systematic development of nonrelativistic quantum mechanics; expansion theorems; wells; oscillators; angular momentum; hydrogen atom; matrix techniques; approximation methods; time dependent problems; atoms; spectroscopy; magnetic resonance; chemical bonding. May be concurrently scheduled with courses C215A-C215B. P/NP or letter grading.

C115C. Advanced Quantum Chemistry: Applications. (4) Lecture, three hours; discussion, one hour. Requisites: courses 113A, C115B. Topics in quantum chemistry selected from molecular structure, collision processes, theory of solids, symmetry and its applications, and theory of electromagnetic radiation. Concurrently scheduled with course C215C. P/NP or letter grading.

M117. Structure, Patterns, and Polyhedra. (5) (Same as Honors Collegium M180.) Lecture, four hours; activity, two hours. Exploration of structures and their geometric underpinnings, with examples and applications from architecture (space frames, domes), biology (enzyme complexes, viruses), chemistry (symmetry, molecular cages), design (tiling), engineering (space filling), and physics (crystal structures) to effect working knowledge of symmetry, two-dimensional patterns, and three-dimensional solids. P/NP or letter grading.

118. Colloidal Dynamics Laboratory. (4) Lecture, two hours; laboratory, eight hours. Requisites: courses 110A and 110B, with grades of B or better, or equivalent statistical mechanics courses from engineering, mathematics, or physics. One aspect of dispersions of microscale particles in viscous liquids is that such dispersions can be used as visual model systems for studying phases that chemistry undergraduate students typically learn about for nanoscale and molecular systems, yet they do not see. Temperature continuously excites molecules and causes rearrangements, giving dynamic views of macromolecules and particles in many fields, including cell and molecular biology, chemical engineering, chemistry, materials science, and physics. Letter grading.

M120. Soft Matter Laboratory. (4) (Same as Physics M180G.) Laboratory, four hours. P/NP or letter grading.

121. Special Topics in Physical Chemistry. (4) Lecture, four hours. Requisite: course 110B. Recommended: course 113A. Topics of considerable research interest presented at level suitable for students who have completed junior-year courses in physical chemistry. P/NP or letter grading.

C123A-C123B. Classical and Statistical Thermodynamics. (4-4) Lecture, four hours; discussion, one hour. Requisite: course 110B or 156. Recommended: course 113A. Rigorous presentation of fundamentals of classical thermodynamics. Principles of statistical thermodynamics: probability, ensembles, partition functions, independent molecules, and perfect gas. Applications of classical and statistical thermodynamics selected from diatomic and polyatomic gases, solid and fluid states, phase equilibria, electric and magnetic effects, ortho-para hydrogen, chemical equilibria, reaction rates, imperfect gas, nonelectrolyte and electrolyte solutions, surface phenomena, high polymers, gravitation. May be concurrently scheduled with courses C223A-C223B. P/NP or letter grading.

125. Computers in Chemistry. (4) Lecture, three hours. Preparation: working knowledge of Fortran IV or PL/1. Requisites: courses 110A, 110B, 113A. Discussion of computer techniques, including matrix manipulation, solution of differential equations, data acquisition, and instrumental control, and their applications to chemical problems in quantum mechanics, thermodynamics, and kinetics. P/NP or letter grading.

C126A. Computational Methods for Chemists. (4) Lecture, four hours; laboratory, four hours. Preparation: programming experience in either BASIC, Fortran, C, C++, Java, or Pascal. Requisites: course 110A, Mathematics 33B. Theoretical, numerical, and programming tools for constructing new chemical applications, including simple force fields and resulting statistical mechanics for simple molecules, simple ab initio methods for organic molecules and nanotubes, and classical dynamics and spectroscopy. Concurrently scheduled with course C226A. P/NP or letter grading.

CM127. Synthetic Biology for Biofuels. (4) (Same as Chemical Engineering CM127.) Lecture, four hours; discussion, one hour. Requisites: course 153A, Life Sciences 3. Engineering microorganisms for complex phenotype is common goal of metabolic engi-

neering and synthetic biology. Production of advanced biofuels involves designing and constructing novel metabolic networks in cells. Such efforts require profound understanding of biochemistry, protein structure, and biological regulations and are aided by tools in bioinformatics, systems biology, and molecular biology. Fundamentals of metabolic biochemistry, protein structure and function, and bioinformatics. Use of systems modeling for metabolic networks to design microorganisms for energy applications. Concurrently scheduled with course CM227. Letter grading.

136. Organic Structural Methods. (5) Lecture, two hours; laboratory, eight hours. Requisites: courses 30C and 30CL, with grades of C- or better. Laboratory course in organic structure determination by chemical and spectroscopic methods; microtechniques. P/NP or letter grading.

C140. Bionanotechnology. (4) Lecture, three hours. Requisites: courses 30C, 110A. Basic physical, chemical, and biological principles in bionanotechnology; materials and strategies for top-down and bottom-up fabrication of ordered biologically derived molecules, characterization and detection techniques, and biomimetic materials and applications at nanoscale. Concurrently scheduled with course C240. P/NP or letter grading.

C143A. Structure and Mechanism in Organic Chemistry. (4) Lecture, three hours; discussion, one hour. Requisites: courses 30C and 30CL (may be taken concurrently), 110B, and 113A, with grades of C- or better. Mechanisms of organic reactions. Acidity and acid catalysis; linear free energy relationships; isotope effects. Molecular orbital theory; photochemistry; pericyclic reactions. May be concurrently scheduled with course C243A. P/NP or letter grading.

C143B. Mechanism and Structure in Organic Chemistry. (4) Lecture, three hours; discussion, one hour. Requisite: course C143A with grade of C- or better. Mechanisms of organic reactions; structure and detection of reactive intermediates. May be concurrently scheduled with course C243B. P/NP or letter grading.

144. Practical and Theoretical Introductory Organic Synthesis. (5) Lecture, two hours; laboratory, eight hours. Enforced requisites: courses 30C and 30CL, with grades of C- or better. Lectures on modern synthetic reactions and processes, with emphasis on stereospecific methods for carbon-carbon bond formation. Laboratory methods of synthetic organic chemistry, including reaction techniques, synthesis of natural products, and molecules of theoretical interest. P/NP or letter grading.

C145. Theoretical and Computational Organic Chemistry. (4) Lecture, two hours; discussion, one hour; computer laboratory, one hour. Requisites: courses 30C, 113A. Applications of quantum mechanical concepts and methods to understand and predict organic structures and reactivities. Computational modeling methods, including laboratory experience with force-field and quantum mechanical computer calculations. Concurrently scheduled with course C245. P/NP or letter grading.

153A. Biochemistry: Introduction to Structure, Enzymes, and Metabolism. (4) Lecture, four hours; discussion, one hour. Requisite: course 14D or 30B, with grade of C- or better. Recommended: Life Sciences 2, 3. Structure of proteins, carbohydrates, and lipids; enzyme catalysis and principles of metabolism, including glycolysis, citric acid cycle, and oxidative phosphorylation. P/NP or letter grading.

153AH. Biochemistry: Introduction to Structure, Enzymes, and Metabolism (Honors). (4) Lecture, three hours; discussion, one hour; tutorial, one hour. Requisite: course 14D or 30B, with grade of C- or better. Recommended: Life Sciences 2, 3. Honors course parallel to course 153A. P/NP or letter grading.

153B. Biochemistry: DNA, RNA, and Protein Synthesis. (4) Lecture, three hours; discussion, one hour; tutorial, one hour. Requisites: course 153A or 153AH, Life Sciences 2, 3. Nucleotide metabolism; DNA replication; DNA repair; transcription machinery;

regulation of transcription; RNA structure and processing; protein synthesis and processing. P/NP or letter grading.

153BH. Biochemistry: DNA, RNA, and Protein Synthesis (Honors). (4) Lecture, three hours; discussion, one hour; tutorial, one hour. Requisites: course 153A or 153AH, Life Sciences 2, 3. Honors course parallel to course 153B. P/NP or letter grading.

153C. Biochemistry: Biosynthetic and Energy Metabolism and Its Regulation. (4) Lecture, three hours; discussion, one hour; tutorial, one hour. Requisite: course 153A or 153AH. Metabolism of carbohydrates, fatty acids, amino acids, and lipids; photosynthetic metabolism and assimilation of inorganic nutrients; regulation of these processes. P/NP or letter grading.

153CH. Biochemistry: Biosynthetic and Energy Metabolism and Its Regulation (Honors). (4) Lecture, three hours; discussion, two hours. Requisite: course 153A or 153AH. Honors course parallel to course 153C. P/NP or letter grading.

153L. Biochemical Methods I. (4) Lecture, two hours; laboratory, four hours. Enforced requisites: courses 14CL and 14D, or 30B and 30BL, and 153A or 153AH (may be taken concurrently), with grades of C- or better. Integrated term-long project involving characterization of enzyme purified from meat obtained at local butcher. Techniques include ammonium sulfate fractionation, affinity chromatography, protein and enzyme assays, polyacrylamide gel electrophoresis, gel exclusion chromatography, and enzyme kinetic analysis. P/NP or letter grading.

154. Biochemical Methods II. (5) Lecture, two hours; laboratory, eight hours. Enforced requisites: courses 153A or 153AH, 153B or 153BH, and 153L, with grades of C- or better. Recommended: course 156. Two to three major laboratory projects using biochemical laboratory techniques to investigate contemporary problems in biochemistry. Topics include transcription activation, molecular basis of DNA-protein interactions, biochemical basis of platelet activation, and initiation of blood clotting cascade. Experiments entail characterizing function of proteins, nucleic acids, and lipids involved in these processes. P/NP or letter grading.

156. Physical Biochemistry. (4) Lecture, four hours; discussion, one hour. Requisites: courses 110A, 153A. Biochemical kinetics; solution thermodynamics of biochemical systems; multiple equilibria; hydrodynamics; energy levels, spectroscopy, and bonding; topics from structural, statistical, and electrochemical methods of biochemistry. P/NP or letter grading.

C159A. Mechanisms in Regulation of Transcription I. (2) First five weeks. Lecture, four hours. Requisites: courses 153B, 154. Mechanisms that control transcription in bacteria. Repression and activation at promoters. Sigma factors and polymerase binding proteins. Signal transduction pathways in transcription. Control of termination. Concurrently scheduled with course C259A. P/NP or letter grading.

C159B. Mechanisms in Regulation of Transcription II. (2) Second five weeks. Lecture, four hours. Requisites: courses 153B, 154. Eukaryotic general transcriptional apparatus; sequence-specific promoter recognition; mechanisms of transcriptional activation and repression, including role of chromatin structure; transcription factors as targets of signal transduction pathways; transcription factors in embryogenesis. Concurrently scheduled with course C259B. P/NP or letter grading.

CM160A. Introduction to Bioinformatics. (4) (Formerly numbered C160A.) (Same as Computer Science CM121.) Lecture, three hours; discussion, one hour. Enforced requisites: Biostatistics 100A or 110A or Mathematics 170A or Statistics 100A or 110A, and Computer Science 180 or Program in Computing 60 with grade of C- or better. Introduction to bioinformatics and methodologies, with emphasis on concepts and inventing new bioinformatic methods. Focus on sequence analysis and alignment algorithms. Concurrently scheduled with course CM260A. P/NP or letter grading.

CM160B. Algorithms in Bioinformatics and Systems Biology. (4) (Formerly numbered C160B.) (Same as Computer Science CM122.) Lecture, four hours; laboratory, four hours. Enforced requisite: course CM160A or Computer Science CM121 with grade of C- or better. Recommended: Computer Science 32 or Program in Computing 60, Statistics 100A, 110A. Development and application of computational approaches to biological questions. Understanding of mechanisms for determining statistical significance of computationally derived results. Development of foundation for innovative work in bioinformatics and systems biology. Concurrently scheduled with course CM260B. Letter grading.

C161A. Plant Biochemistry. (4) Lecture, three hours; discussion, two hours. Requisite: course 153C. Introduction to distinctive features of plant biochemistry. Topics include photosynthesis, nitrogen metabolism, plant cell wall metabolism, and secondary metabolism in relation to stress. Concurrently scheduled with course C261A. P/NP or letter grading.

C164. Free Radicals in Biology and Medicine. (2 to 4) Lecture, three hours. Enforced requisites: courses 153A and either 153B or 153C, with grades of C- or better. Biochemical reactivity of dioxygen, its role in mitochondrial metabolism, neurodegenerative diseases, apoptosis, and aging. Discussion of radical reactions, how they are harnessed to achieve enzyme catalysis, and how free radicals contribute to or regulate essential biological processes. These same reactions "run amok" under certain types of stress and can contribute to wide variety of diseases, including neurodegenerative diseases (e.g., Huntington's, Parkinson's, and Alzheimer's diseases), mitochondrial diseases, atherosclerosis, and aging. Concurrently scheduled with course C264. P/NP or letter grading.

C165. Metabolic Control by Protein Modification. (4) Lecture, three hours; discussion, one hour. Requisites: courses 153A, 153B, 153C. Biochemical basis of controlling metabolic pathways by posttranslational modification of proteins, including phosphorylation and methylation reactions. Concurrently scheduled with course C265. Letter grading.

CM170. Biochemistry and Molecular Biology of Photosynthetic Apparatus. (2 to 4) (Same as Molecular, Cell, and Developmental Biology M170.) Lecture, two to three hours; discussion, zero to two hours. Requisites: courses 153A and 153B, or Life Sciences 3, and course 153L. Recommended: courses 153C, 154, Life Sciences 4. Light harvesting, photochemistry, electron transfer, carbon fixation, carbohydrate metabolism, pigment synthesis in chloroplasts and bacteria. Assembly of photosynthetic membranes and regulation of genes encoding those components. Emphasis on understanding of experimental approaches. Concurrently scheduled with course C270. P/NP or letter grading.

171. Intermediate Inorganic Chemistry. (4) Lecture, three hours; discussion, one hour. Requisite: course 30B with grade of C- or better. Chemical bonding; structure and bonding in solid state; main group, transition metal, lanthanide and actinide compounds and reactions; catalysis, spectroscopy, special topics. P/NP or letter grading.

172. Advanced Inorganic Chemistry. (4) (Formerly numbered C172.) Lecture, three hours; discussion, one hour. Requisite: course 171 with grade of C- or better. Systematic approach to modern inorganic chemistry, structure and bonding of inorganic molecules and solids, structure/reactivity relationships, vibrational spectra of complexes, electronic structure and ligand-field theory, mechanisms of inorganic reactions, bonding and spectroscopy of organometallic compounds, transition metals in catalysis and biology. P/NP or letter grading.

C174. Inorganic and Metalorganic Laboratory Methods. (5) Lecture, two hours; laboratory, eight hours. Enforced requisites: courses 30CL and C172, with grades of C- or better. Synthesis of inorganic compounds, including air-sensitive materials; Schlenck techniques; chromatographic and ion ex-

change methods; spectroscopic characterization and literature applications. Concurrently scheduled with course C274. P/NP or letter grading.

C175. Inorganic Reaction Mechanisms. (4) Lecture, three hours. Requisites: courses 110A, 110B, 113A, C172. Survey of inorganic reactions; mechanistic principles; electronic structure of metal ions; transition-metal coordination chemistry; inner- and outer-sphere and chelate complexes; substitution, isomerization, and racemization reactions; stereochemistry; oxidation/reduction, free/radical, polymerization, and photochemical reactions of inorganic species. May be concurrently scheduled with course C275. P/NP or letter grading.

C176. Group Theory and Applications to Inorganic Chemistry. (4) Lecture, three hours; discussion, one hour. Requisites: courses 113A, C172. Group theoretical methods; molecular orbital theory; ligand-field theory; electronic spectroscopy; vibrational spectroscopy. May be concurrently scheduled with course C276A. P/NP or letter grading.

C179. Biological Inorganic Chemistry. (4) Lecture, three hours. Requisites: courses 153A (or 153AH), 171. Role of metal ions in biology. Topics include interactions of metal ions with proteins, nucleic acids, and other biological molecules; mechanisms of metal ion transport and storage; introduction to metalloenzyme; metalloproteins in electron transfer, respiration, and photosynthesis; metals in medicine. Concurrently scheduled with course C279. P/NP or letter grading.

C180. Solid-State Chemistry. (4) Lecture, three hours. Requisite: course C172. Survey of new materials and methods for their preparation and characterization, with emphasis on band theory and its relationship to chemical, optical, transport, and magnetic properties, leading to deeper understanding of these materials. Concurrently scheduled with course C280. P/NP or letter grading.

C181. Polymer Chemistry. (4) Lecture, three hours; discussion, one hour. Requisites: courses 30B, 110A. Synthesis of organic and inorganic macromolecules, thermodynamic and statistical mechanical descriptions of unique properties of polymers, polymer characterization methods, and special topics such as conductive and biomedical polymers and polymeric reagents in synthesis. Concurrently scheduled with course C281. P/NP or letter grading.

184. Chemical Instrumentation. (5) Lecture, two hours; laboratory, eight hours. Enforced requisites: courses 30CL and 110A, with grades of C- or better. Theory and practice of instrumental techniques of chemical and structural analysis, including atomic absorption spectroscopy, gas chromatography, mass spectrometry, nuclear magnetic resonance, polarography, X-ray fluorescence, and other modern methods. P/NP or letter grading.

C185. Materials Chemistry Laboratory. (5) Lecture, two hours; laboratory, eight hours. Requisites: courses 30AL, 110A, 113A, 171. Materials synthesis and physical properties of complex materials. Combines synthetic skills with fundamental physical understanding and characterization in approximately equal proportions to relate materials synthesis to materials function. Concurrently scheduled with course C285. Letter grading.

193A. Journal Club Seminars: UC LEADS and MARC. (2) Seminar, three hours. Designed for juniors/seniors in undergraduate research training programs such as UC LEADS and MARC or those who have strong commitment to pursue graduate studies in natural sciences, engineering, or mathematics. Weekly reading and oral presentations of research or research papers selected from current literature. May be repeated for credit. Letter grading.

193B. Journal Club Seminars: Chemistry and Biochemistry. (2) Seminar, three hours. Limited to undergraduate students. Discussion of readings selected from current literature in particular field. May be repeated for credit. P/NP grading.

194. Research Group Seminars: Chemistry and Biochemistry. (1) Seminar, three hours. Designed for undergraduate students who are part of research group. Advanced study and analysis of current topics

in physical, organic, or inorganic chemistry or biochemistry. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. P/NP grading.

196A. Research Apprenticeship in Chemistry and Biochemistry. (2 to 4) Tutorial, three hours per week per unit. Limited to juniors/seniors. Entry-level research apprenticeship for upper division students under guidance of faculty mentor. Consult department for additional information regarding requirements, enrollment petitions, and written proposal deadlines. May be repeated for maximum of 8 units. Individual contract required. P/NP grading.

196B. Research Apprenticeship in Chemistry and Biochemistry. (2 to 4) Tutorial, three hours per week per unit. Enforced requisite: course 196A (8 units). Limited to juniors/seniors. Research apprenticeship for upper division students under guidance of faculty mentor. Consult department for additional information regarding requirements, enrollment petitions, and written proposal deadlines. May be taken for maximum of 4 units. Individual contract required. P/NP or letter grading.

199. Directed Research in Chemistry and Biochemistry. (2 to 4) Tutorial, three hours per week per unit. Enforced requisite: course 196A (8 units). Limited to juniors/seniors. Supervised individual research under guidance of faculty mentor. Culminating report required. May be repeated for maximum of 12 units. Individual contract required. P/NP or letter grading.

Graduate Courses

201. Scientific Proposal Writing. (2) Lecture, three hours. Designed for graduate biochemistry and molecular biology students. How to write scientific proposals to be submitted to funding agencies. How to develop curricula vitae, put together grant proposals, and critique proposals. Letter grading.

M202. Bioinformatics Interdisciplinary Research Seminar. (4) (Formerly numbered 202.) (Same as Bioinformatics M202.) Seminar, two hours; discussion, two hours. Concrete examples of how biological questions about genomics data map to and are solved by methodologies from other disciplines, including statistics, computer science, and mathematics. May be repeated for credit. S/U or letter grading.

203A. Research Integrity and Ethics in Cellular and Molecular Biology Research. (2) Lecture, two hours. Data analysis and management, statistical methods, use of antibody and kit reagents, figure preparation, authorship, mentoring, human subjects protection, animal subject protection, and conflict of interest. May be repeated for credit. S/U grading.

203B. Ethics in Chemical Research. (2) Seminar, one hour. Discussion of ethics in graduate education, teaching, and chemical research, including issues such as conflicts of interest, plagiarism, intellectual property, sexual harassment, and other topics related to ethical conduct of research. S/U grading.

203C. Research Integrity and Ethics in Genetics Research. (2) Lecture, 90 minutes. Data analysis and management, statistical methods, use of commercial reagents, microscopy data analysis, figure preparation, authorship, mentoring, human subjects protection, animal subject protection, and conflict of interest. May be repeated for credit. S/U grading.

204. Student Research Seminar. (2) Seminar, one hour. Limited to students supported by UCLA program in Cellular and Molecular Biology Predoctoral Training. Research seminar presented by second- and third-year students. S/U grading.

CM205A. Introduction to Chemistry of Biology. (3) (Formerly numbered M205A.) (Same as Pharmacology M205A.) Lecture, three hours. Enforced requisite: course 153A with grade of C- or better. Introduction to chemical biology. Topics include computational chemical biology, utility of synthesis in biochemical research, peptidomimetics, designed reagents for cellular imaging, natural product biosynthesis, protein engineering and directed evolution, cell biology of metal

ions, imaging metal ions in cells, metal-containing drugs. Concurrently scheduled with course C105. S/U or letter grading.

M205B. Issues on Chemistry/Biology Interface. (2) (Same as Pharmacology M205B.) Seminar, one hour. Requisite: course M205A. Selected talks and papers presented by training faculty on solving problems and utilizing tools in chemistry and molecular biology on chemistry/biology interface (CBI). S/U grading.

206. Chemistry of Biology Seminar. (2) Seminar, three hours. Limited to students supported by UCLA program in Chemistry/Biology Interface Predoctoral Training. Current research topics at interface of chemistry and biology. May be repeated for credit. S/U grading.

207. Organometallic Chemistry. (4) Lecture/discussion, three hours. Requisite or corequisite: course C243A. Survey of synthesis, structure, and reactivity (emphasizing mechanistic approach) of compounds containing carbon bonded to elements selected from main group metals, metalloids, and transition metals, including olefin complexes and metal carbonyls; applications in catalysis and organic synthesis. S/U or letter grading.

C208. Mass Spectrometry for Chemists and Biochemists. (2) Lecture, one hour; laboratory, four hours. Requisite: course 153A. Introduction to principles and practice of organic and inorganic mass spectrometry. Topics include EI, CI, ICP/MS, GC/MS, LC/MS, ESI, MALDI, MS/MS protein identification, and proteomics. Concurrently scheduled with course C108. S/U or letter grading.

210. Scientific Glassblowing. (1) Laboratory, one hour. Instruction in safe handling and manipulation of scientific glassware. Introduction to basic glassblowing techniques such as bending, annealing, and fire-polishing of glass. Proper cutting of glass and repairing of cracks. S/U grading.

C213B. Physical Chemistry: Molecular Spectroscopy. (4) Lecture, three hours; discussion, one hour; tutorial, one hour. Requisite: course 113A. Interaction of radiation with matter, microwave spectroscopy, infrared and Raman spectroscopy, vibrations in polyatomic molecules, electronic spectroscopy, magnetic resonance spectroscopy. Concurrently scheduled with course C113B. Independent study project required of graduate students. S/U or letter grading.

C215A-C215B. Quantum Chemistry: Methods. (4-4) Lecture, four hours; discussion, one hour. Requisites: course 113A, Mathematics 31A, 31B, 32A, 32B, 33A, with grades of C- or better. Recommended: knowledge of differential equations equivalent to Mathematics 134 or 135 or Physics 131 and of analytic mechanics equivalent to Physics 105A. Course C215A or Physics 115B with grade of C- or better is requisite to C215B. Students entering course C215A are normally expected to take course C215B in following term. Designed for chemistry students with serious interest in quantum chemistry. Postulates and systematic development of nonrelativistic quantum mechanics; expansion theorems; wells; oscillators; angular momentum; hydrogen atom; matrix techniques; approximation methods; time dependent problems; atoms; spectroscopy; magnetic resonance; chemical bonding. May be concurrently scheduled with courses C115A-C115B. S/U or letter grading.

C215C. Advanced Quantum Chemistry: Applications. (4) Lecture, three hours; discussion, one hour. Requisite: course C215B. Topics in quantum chemistry selected from molecular structure, collision processes, theory of solids, symmetry and its applications, and theory of electromagnetic radiation. Concurrently scheduled with course C115C. S/U or letter grading.

215D. Molecular Spectra, Diffraction, and Structure. (4) Lecture, three hours; discussion, one hour. Requisites: course C215B, Physics 131. Selected topics from electronic spectra of atoms and molecules; vibrational, rotational, and Raman spectra; magnetic resonance spectra; X-ray, neutron, and electron diffraction; coherence effects. S/U or letter grading.

218. Physical Chemistry Student Seminar. (2) Seminar, two hours. Seminars presented by staff, outside speakers, postdoctoral fellows, and graduate students. May be repeated for credit. S/U grading.

219A-219Z. Seminars: Research in Physical Chemistry. (2 each) Seminar, three hours. Advanced study and analysis of current topics in physical chemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading:

219E. Dynamics of Molecule-Molecule and Molecule-Surface Reactions.

219I. Spectroscopy of Isolated Molecules, Complexes, and Clusters.

219J. Chemistry and Biophysics of Interfaces.

219K. Statistical Mechanics of Disordered Systems.

219L. Modern Methods for Molecular Reactions and Structure.

219N. Cosmochemistry.

219Q. Ultrafast Studies of Chemical Reaction Dynamics in Condensed Phase.

219R. Kinetic, Thermodynamic, and Interfacial Effects in Materials.

219S. Nanoscience.

219T. Single-Molecule Spectroscopy in Biology.

219U. Theory and Applications of Magnetic Resonance Spectroscopy and Imaging.

219V. Complex Fluids: Composition, Structure, and Rheology.

219W. Biophysics and Statistical Mechanics of Soft Matter.

219X. Dynamic Processes in Chemically Reacting Flow Systems.

221A-221Z. Advanced Topics in Physical Chemistry. (2 to 4 each) Lecture, two to four hours. Each course encompasses one recognized specialty in physical chemistry, generally taught by faculty members whose research interests embrace that specialty. S/U or letter grading.

C223A-C223B. Classical and Statistical Thermodynamics. (4-4) Lecture, four hours; discussion, one hour. Requisite: course 110B or 156. Recommended: course 113A. Presentation of fundamentals of classical thermodynamics. Principles of statistical thermodynamics: probability, ensembles, partition functions, independent molecules, and perfect gas. Applications of classical and statistical thermodynamics selected from diatomic and polyatomic gases, solid and fluid states, phase equilibria, electric and magnetic effects, ortho-para hydrogen, chemical equilibria, reaction rates, imperfect gas, nonelectrolyte and electrolyte solutions, surface phenomena, high polymers, gravitation. May be concurrently scheduled with courses C123A-C123B. S/U or letter grading.

M223C. Nonequilibrium Statistical Mechanics and Molecular Biophysics. (4) (Same as Physics M215D.) Lecture, three hours. Requisites: courses C215B and C223B, or Physics 215A. Fundamentals of nonequilibrium thermodynamics and statistical mechanics applied to molecular biophysics. S/U or letter grading.

225. Chemical Kinetics. (4) Lecture, three hours; discussion, one hour. Requisites: courses C215B, C223B. Classical experimental and theoretical approaches to study of rates and mechanisms of chemical reactions. Modern experimental techniques and molecular-level theory of reaction dynamics. Examples of well-studied elementary reactions. S/U or letter grading.

C226A. Computational Methods for Chemists. (4) Lecture, four hours; laboratory, four hours. Preparation: programming experience in either BASIC, Fortran, C, C++, Java, or Pascal. Requisites: course 110A, Mathematics 33B. Theoretical, numerical, and programming tools for constructing new chemical applications, including simple force fields and resulting statistical mechanics for simple molecules, simple ab-initio methods for organic molecules and nanotubes,

and classical dynamics and spectroscopy. Concurrently scheduled with course C126A. S/U or letter grading.

CM227. Synthetic Biology for Biofuels. (4) (Same as Chemical Engineering CM227.) Lecture, four hours; discussion, one hour. Requisites: course 153A, Life Sciences 3. Engineering microorganisms for complex phenotype is common goal of metabolic engineering and synthetic biology. Production of advanced biofuels involves designing and constructing novel metabolic networks in cells. Such efforts require profound understanding of biochemistry, protein structure, and biological regulations and are aided by tools in bioinformatics, systems biology, and molecular biology. Fundamentals of metabolic biochemistry, protein structure and function, and bioinformatics. Use of systems modeling for metabolic networks to design microorganisms for energy applications. Concurrently scheduled with course CM127. S/U or letter grading.

228. Chemical Physics Seminar. (2) Seminar, two hours. Seminars presented by staff, outside speakers, postdoctoral fellows, and graduate students. May be repeated for credit. S/U or letter grading.

229. Introduction to Physical Chemistry Research. (2) Lecture, 90 minutes. Designed primarily for entering graduate physical chemistry students. S/U grading.

M230B. Structural Molecular Biology. (4) (Same as Molecular, Cell, and Developmental Biology M230B.) Lecture, three hours; discussion, one hour. Requisites: Mathematics 3C, Physics 6C. Selected topics from principles of biological structure; structures of globular proteins and RNAs; structures of fibrous proteins, nucleic acids, and polysaccharides; harmonic analysis and Fourier transforms; principles of electron, neutron, and X-ray diffraction; optical and computer filtering; three-dimensional reconstruction. S/U or letter grading.

M230D. Structural Molecular Biology Laboratory. (2) (Same as Molecular, Cell, and Developmental Biology M230D.) Laboratory, 10 hours. Corequisite: course M230B. Methods in structural molecular biology, including experiments utilizing single crystal X-ray diffraction, low angle X-ray diffraction, electron diffraction, optical diffraction, optical filtering, three-dimensional reconstruction from electron micrographs, and model building. S/U or letter grading.

232. Stereochemistry and Conformational Analysis. (4) Lecture/discussion, three hours. Requisite or corequisite: course C143A. Molecular symmetry, chirality, prochirality, stereochemistry in vinyl polymers, atropisomerism, diastereomeric interactions in solution, conformations of acyclic and cyclic molecules. S/U or letter grading.

235A-235Z. Seminars: Research in Organic Chemistry. (2 each) Seminar/research group meeting, three hours. Advanced study and analysis of current topics in organic chemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading:

235D. Modern Photochemistry and Biooxidants.

235E. Theoretical and Physical Organic Chemistry.

235F. Synthetic Methods and Synthesis of Natural Products.

235G. Organometallic Chemistry and Organic Synthesis.

235I. Fullerene Chemistry and Materials Science.

235K. Organic Chemistry in Organized and Restricted Media.

235L. Supramolecular and Macromolecular Chemistry.

235M. Organic Solid-State Chemistry.

235N. Target- and Diversity-Oriented Synthesis of Natural Products and Product-Like Molecules.

235O. Polymer Chemistry and Biomaterials.

235P. Reaction Discovery and Total Synthesis of Complex Molecules.

235Q. Synthetic Organic Chemistry Research.

236. Spectroscopic Methods of Organic Chemistry. (4) Lecture, three hours. Requisite or corequisite: course C243A. Problem solving using proton and carbon 13 nuclear magnetic resonance, infrared spectroscopy, and mass spectrometry; new techniques in NMR, IR, and MS, with emphasis on Fourier transform NMR. S/U or letter grading.

C240. Bionanotechnology. (4) Lecture, three hours. Requisites: courses 30C, 110A. Basic physical, chemical, and biological principles in bionanotechnology; materials and strategies for top-down and bottom-up fabrication of ordered biologically derived molecules, characterization and detection techniques, and biomimetic materials and applications at nanoscale. Concurrently scheduled with course C140. S/U or letter grading.

241A-241Z. Special Topics in Organic Chemistry. (2 to 4 each) Lecture, two to four hours. Requisite or corequisite: course C243A. Each course encompasses one recognized specialty in organic chemistry, generally taught by faculty members whose research interests embrace that specialty. S/U or letter grading.

242. Organic Photochemistry. (4) Lecture/discussion, three hours. Requisite or corequisite: course C243A. Interactions of light with organic molecules; mechanistic and preparative photochemistry. S/U or letter grading.

C243A. Structure and Mechanism in Organic Chemistry. (4) Lecture, three hours; discussion, one hour. Requisites: courses 30C and 30CL (may be taken concurrently), 110B, and 113A, with grades of C- or better. Mechanisms of organic reactions. Acidity and acid catalysis; linear free energy relationships; isotope effects. Molecular orbital theory; photochemistry; pericyclic reactions. May be concurrently scheduled with course C143A. S/U or letter grading.

C243B. Organic Chemistry: Mechanism and Structure. (4) Lecture, three hours; discussion, one hour. Requisite: course C243A. Mechanisms of organic reactions; structure and detection of reactive intermediates. May be concurrently scheduled with course C143B. S/U or letter grading.

244A. Organic Synthesis: Methodology and Stereochemistry. (4) Lecture, three hours; discussion, one hour. Modern synthetic reactions and transformations involving organic substrates. Special emphasis on reagents useful in asymmetric induction and stereoselective synthesis of structurally complex target molecules. S/U or letter grading.

244B. Strategy and Design in Organic Synthesis. (4) Lecture, three hours. Requisite or corequisite: course C243A. Theory behind planning of syntheses of complex molecules from simpler ones. Organic reactions and their use in synthetic process. Reasoning and art involved in organic synthesis. S/U or letter grading.

C245. Theoretical and Computational Organic Chemistry. (4) Lecture, two hours; discussion, one hour; computer laboratory, one hour. Requisites: courses 30C, 113A. Applications of quantum mechanical concepts and methods to understand and predict organic structures and reactivities. Computational modeling methods, including laboratory experience with force-field and quantum mechanical computer calculations. Concurrently scheduled with course C145. S/U or letter grading.

247. Organic Colloquium. (2) Seminar, two hours. Seminars in organic chemistry and related areas presented by staff, outside speakers, postdoctoral fellows, and graduate students. May be repeated for credit. S/U grading.

248. Organic Chemistry Student Seminar. (2) Seminar, two hours. Seminars presented by staff, outside speakers, postdoctoral fellows, and graduate students. May be repeated for credit. S/U or letter grading.

249A. Problems in Advanced Organic Chemistry. (4) Lecture, four hours. Designed primarily for first-year graduate students as preparation for cumulative examinations. Introduction to organic chemistry research. Problems in organic reaction mechanisms,

synthesis, structure determination, stereochemistry, spectroscopy, electronic theory, photochemistry, and organometallic chemistry. S/U grading.

249B. Problems in Advanced Organic Chemistry. (2) Lecture, two hours. Designed primarily for first- and second-year graduate students as preparation for cumulative examinations. Problems in organic reaction mechanisms, synthesis, structure determination, stereochemistry, spectroscopy, electronic theory, photochemistry, and organometallic chemistry, with emphasis on current literature. May be repeated for credit. S/U grading.

251A-251Z. Advanced Topics in Biochemistry. (2 each) Lecture, two to four hours. Each course encompasses one recognized specialty in biochemistry, generally taught by faculty members whose research interests embrace that specialty. S/U or letter grading.

M252. Seminar: Advanced Methods in Computational Biology. (2) (Same as Bioinformatics M252 and Human Genetics M252.) Seminar, one hour; discussion, one hour. Designed for advanced graduate students. Examination of computational methodology in bioinformatics and computational biology through presentation of current research literature. How to select and apply methods from computational and mathematical disciplines to problems in bioinformatics and computational biology; development of novel methodologies. S/U or letter grading.

256A-256Z. Seminars: Research in Biochemistry. (2 each) Seminar, three hours. Advanced study and analysis of current topics in biochemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading:

256A. Biochemistry of Plasma Proteins.

256B. Biochemistry of Protein Function.

256C. Biochemistry and Molecular Genetics of Fungi.

256D. Transcriptional Control Mechanisms in *Drosophila* Embryogenesis.

256F. Current Topics in Prokaryotic Development.

256G. Nucleic Acid Structure Determination by NMR.

256H. Basic Mechanisms of Promoter Activation.

256J. Contractile Proteins in Muscle Contraction and Cell Motility.

256K. Biochemistry and Molecular Biology of *Chlamydomonas*.

256L. Literature of Structural Biology.

256M. Mechanism and Regulation of Transcription Termination in Eukaryotic Organisms.

256N. Advanced Topics in Structural Biology.

256O. Membrane Biophysics.

256P. Analysis of Protein Structure.

256Q. Biochemistry and Function of Ubiquinone in Yeast and Higher Eukaryotes.

256R. Biomolecular Nuclear Magnetic Resonance Spectroscopy and Protein Structure.

256S. Proteome Bioinformatics.

256T. RNA Processing and RNA Genomics.

256U. Mitochondrial Biogenesis and Link to Disease.

256V. Proteomics and Mass Spectrometry.

256W. Cytoskeletal Dynamics during *Drosophila* Oogenesis.

256X. Microtubule-Based Structures and Human Disease.

257. Physical Chemistry of Biological Macromolecules. (4) Lecture, one hour; discussion, one hour; laboratory, four hours. Requisite: course 153A. Theory of hydrodynamic, thermodynamic, and optical techniques used to study structure and function of biological macromolecules. S/U or letter grading.

258. Advanced Topics in Biochemistry and Molecular Biology. (2) Lecture, two hours. Critical analysis of experimental design and methods in biochemistry and molecular biology. In-depth analysis of literature in one or more areas of current research. May be repeated for credit. S/U or letter grading.

C259A. Mechanisms in Regulation of Transcription I. (2) First five weeks. Lecture, four hours. Requisite: course 269D. Mechanisms that control transcription in bacteria. Repression and activation at promoters. Sigma factors and polymerase binding proteins. Signal transduction pathways in transcription. Control of termination. Concurrently scheduled with course C159A. S/U or letter grading.

C259B. Mechanisms in Regulation of Transcription II. (2) Second five weeks. Lecture, four hours. Requisite: course 269D. Eukaryotic general transcriptional apparatus; sequence-specific promoter recognition; mechanisms of transcriptional activation and repression, including role of chromatin structure; transcription factors as targets of signal transduction pathways; transcription factors in embryogenesis. Concurrently scheduled with course C159B. S/U or letter grading.

CM260A. Introduction to Bioinformatics. (4) (Formerly numbered CM260.) (Same as Bioinformatics M260A, Computer Science CM221, and Human Genetics M260A.) Lecture, three hours; discussion, one hour. Enforced requisites: Biostatistics 100A or 110A or Mathematics 170A or Statistics 100A or 110A, and Computer Science 180 or Program in Computing 60 with grade of C- or better. Introduction to bioinformatics and methodologies, with emphasis on concepts and inventing new bioinformatic methods. Focus on sequence analysis and alignment algorithms. Concurrently scheduled with course CM160A. S/U or letter grading.

CM260B. Algorithms in Bioinformatics and Systems Biology. (4) (Formerly numbered C260B.) (Same as Computer Science CM222.) Lecture, four hours; laboratory, four hours. Enforced requisite: course CM260A or Computer Science CM221 with grade of C- or better. Recommended: Computer Science 32 or Program in Computing 60, Statistics 100A, 110A. Development and application of computational approaches to biological questions. Understanding of mechanisms for determining statistical significance of computationally derived results. Development of foundation for innovative work in bioinformatics and systems biology. Concurrently scheduled with course CM160B. Letter grading.

260BL. Advanced Bioinformatics Computational Laboratory. (2) Laboratory, four hours. Enforced requisite: course CM260A. Corequisite: course C260B. Development and application of computational approaches to ask and answer biological questions by implementing variety of bioinformatics and systems biology algorithms. Advantages and disadvantages of different algorithmic methods for studying biological questions and preliminary understanding of how to compute statistical significance of results. Development of conceptual understanding of implementation of bioinformatics algorithms and foundation for how to do innovative work in these fields. Experience in observing impact of computational complexity of algorithms in computing solutions. S/U or letter grading.

C261A. Plant Biochemistry. (4) Lecture, three hours; discussion, two hours. Requisite: course 153C. Introduction to distinctive features of plant biochemistry. Topics include photosynthesis, nitrogen metabolism, plant cell wall metabolism, and secondary metabolism in relation to stress. Concurrently scheduled with course C161A. S/U or letter grading.

262. Biochemistry and Molecular Biology of Protein Translocation Systems. (3) Lecture, two hours; discussion, two hours. Requisites: courses CM253, or 269A through 269D. Protein translocation into nucleus, mitochondrion, peroxisome, chloroplast, endoplasmic reticulum, and protein export in bacteria. Letter grading.

M263. Metabolism and Its Regulation. (4) (Same as Biological Chemistry M263.) Lecture, three hours. Requisites: course 110A, and one course from 153B, 153C, or 156, or Biological Chemistry 201A and 201B. Thermodynamic and kinetic aspects of metabolism; regulatory properties of enzymes; metabolic regulation; consideration of comparative aspects of metabolism in relation to physiological function. S/U or letter grading.

C264. Free Radicals in Biology and Medicine. (2 to 4) Lecture, three hours. Enforced requisites: courses 153A and either 153B or 153C, with grades of C– or better. Biochemical reactivity of dioxygen, its role in mitochondrial metabolism, neurodegenerative diseases, apoptosis, and aging. Discussion of radical reactions, how they are harnessed to achieve enzyme catalysis, and how free radicals contribute to or regulate essential biological processes. These same reactions “run amok” under certain types of stress and can contribute to wide variety of diseases, including neurodegenerative diseases (e.g., Huntington’s, Parkinson’s, and Alzheimer’s diseases), mitochondrial diseases, atherosclerosis, and aging. Concurrently scheduled with course C164. S/U or letter grading.

C265. Metabolic Control by Protein Modification. (4) Lecture, three hours; discussion, one hour. Requisites: courses 153A, 153B, 153C. Biochemical basis of controlling metabolic pathways by posttranslational modification of proteins, including phosphorylation and methylation reactions. Concurrently scheduled with course C165. Letter grading.

266. Proteomics and Protein Mass Spectrometry. (3) Lecture, two hours. Essential technologies and concepts practiced in proteomics-based research, including methods for protein separation and display, protein quantitation, and protein identification. Emphasis on fundamentals of protein mass spectrometry. S/U or letter grading.

268. Biochemistry Research Seminar. (2) Seminar, two hours. Seminars presented by staff, outside speakers, postdoctoral fellows, and graduate students on topics of current biochemical research interest. May be repeated for credit. S/U or letter grading.

269A. Protein Structure. (2) Lecture, five hours; discussion, two hours. Requisites: courses 153A, 153B, 153C, 156. Three-dimensional structure of proteins. Forces that stabilize structure of soluble and membrane proteins. Kinetics of protein folding and role of chaperones. Prediction of protein structure from sequence. Letter grading.

269B. Biocatalysis and Bioenergetics. (2) Lecture, five hours; discussion, two hours. Requisites: courses 153A, 153B, 153C, 156. Mechanisms and regulation of protein-mediated catalysis. Proteomics and metabolomics. Concepts in electron, proton, and energy transfer. Energy transducing membranes in chloroplasts and mitochondria. Letter grading.

269C. Nucleic Acid Structure and Catalysis. (2) Lecture, five hours; discussion, two hours. Requisites: courses 153A, 153B, 153C, 156. Three-dimensional structure of DNA and RNA. Sequence-specific recognition of DNA and RNA. RNA-catalyzed processes, including self-splicing and peptide bond formation. Letter grading.

269D. Mechanism and Regulation of Gene Expression. (2) Lecture, five hours; discussion, two hours. Requisites: courses 153A, 153B, 153C, 156. Mechanism and regulation of transcription in prokaryotes and eukaryotes. Mechanism and regulation of mRNA processing; mRNA export and degradation. Letter grading.

269E. Biomolecular Structure, Catalysis, and Regulation. (2) Lecture, five hours; discussion, two hours. Requisites: courses 153A, 153B, 153C, 156. Protein-protein interactions, proteomics, protein networks, regulatory circuits, cellular dynamics, imaging of cellular processes. Letter grading.

C270. Biochemistry and Molecular Biology of Photosynthetic Apparatus. (2 to 4) Lecture, two to three hours; discussion, zero to two hours. Requisites: courses 153A and 153B, or Life Sciences 3, and course 153L. Recommended: courses 153C, 154, Life Sciences 4. Light harvesting, photochemistry, electron transfer, carbon fixation, carbohydrate metabolism, pigment synthesis in chloroplasts and bacteria. Assembly of photosynthetic membranes and regulation of genes encoding those components. Emphasis on understanding of experimental approaches. Concurrently scheduled with course CM170. S/U or letter grading.

271. Advanced Topics in Inorganic Chemistry. (2 to 4) Lecture, two to four hours. Each offering encompasses one recognized specialty in inorganic chemistry, generally taught by faculty members whose research interests embrace that specialty. S/U or letter grading.

272A-272Z. Seminars: Research in Inorganic Chemistry. (2 each) Seminar, three hours. Advanced study and analysis of current topics in inorganic chemistry. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading:

272A. Chemistry of Materials.

272B. Metalorganic, Inorganic Biometalorganic Chemistry.

272C. Inorganic Spectroscopy.

272D. Bioinorganic Chemistry and Biology of Transition Metals and Oxygen.

272E. Organometallic Synthesis and Chemical Vapor Deposition.

272G. Issues in Chemical Education.

272I. Organometallic Chemistry.

272J. Reticular Chemistry.

C274. Inorganic and Metalorganic Laboratory Methods. (5) Lecture, two hours; laboratory, eight hours. Enforced requisites: courses 30CL and C172, with grades of C– or better. Synthesis of inorganic compounds, including air-sensitive materials; Schlenk techniques; chromatographic and ion exchange methods; spectroscopic characterization and literature applications. Concurrently scheduled with course C174. S/U or letter grading.

C275. Inorganic Reaction Mechanisms. (4) Lecture, three hours. Requisites: courses 110A, 110B, 113A, C172. Survey of inorganic reactions; mechanistic principles; electronic structure of metal ions; transition-metal coordination chemistry; inner- and outer-sphere and chelate complexes; substitution, isomerization, and racemization reactions; stereochemistry; oxidation/reduction, free radical, polymerization, and photochemical reactions of inorganic species. May be concurrently scheduled with course C175. S/U or letter grading.

C276A. Group Theory and Applications to Inorganic Chemistry. (4) Lecture, three hours; discussion, one hour. Requisites: courses 113A, C172. Group theoretical methods; molecular orbital theory; ligand-field theory; electronic spectroscopy; vibrational spectroscopy. May be concurrently scheduled with course C176. S/U or letter grading.

276B. Physical Methods in Inorganic Chemistry. (4) Lecture, three hours. Requisite: course C276A. Theory and applications of spectroscopic techniques, including magnetic resonance and vibrational and surface science methods, to inorganic compounds and materials. S/U or letter grading.

277. Crystal Structure Analysis. (4) Lecture, three hours. Theory and practice of modern crystallography, with emphasis on practical experience in structure determination. Topics include crystallographic symmetry, scattering theory, data collection, Fourier analysis, heavy atom techniques, direct methods, isomorphous replacement, crystallographic refinement, error analysis, and common pitfalls. S/U or letter grading.

278. Inorganic Chemistry Student Seminar. (2) Seminar, two hours. Seminars presented by staff, outside speakers, postdoctoral fellows, and graduate students. May be repeated for credit. S/U or letter grading.

C279. Biological Inorganic Chemistry. (4) Lecture, three hours. Requisites: courses 153A (or 153AH), 171. Role of metal ions in biology. Topics include interactions of metal ions with proteins, nucleic acids, and other biological molecules; mechanisms of metal ion transport and storage; introduction to metalloenzyme; metalloproteins in electron transfer, respiration, and photosynthesis; metals in medicine. Concurrently scheduled with course C179. S/U or letter grading.

C280. Solid-State Chemistry. (4) Lecture, three hours. Requisite: course C172. Survey of new materials and methods for their preparation and characterization, with emphasis on band theory and its relation-

ship to chemical, optical, transport, and magnetic properties, leading to deeper understanding of these materials. Concurrently scheduled with course C180. S/U or letter grading.

C281. Polymer Chemistry. (4) Lecture, three hours; discussion, one hour. Requisites: courses 30B, 110A. Synthesis of organic and inorganic macromolecules, thermodynamic and statistical mechanical descriptions of unique properties of polymers, polymer characterization methods, and special topics such as conductive and biomedical polymers and polymeric reagents in synthesis. Concurrently scheduled with course C181. S/U or letter grading.

282. Introduction to Inorganic Chemistry Research. (2) Lecture, 90 minutes. Discussion of current research in inorganic chemistry, designed primarily for entering graduate inorganic chemistry students. S/U grading.

283. Evolution of Devices from Concept to Product. (2) Seminar, 90 minutes. Required of students in Materials Creation Training Program. Training in fundamental science and engineering to fabricate electrical, photonic, and microelectromechanical devices. Discussion of intellectual property issues and development of business plan. May be repeated for credit. S/U or letter grading.

284. Materials Creation Training Program Brown-Bag Seminar. (2) Seminar, one hour. Required of students in Materials Creation Training Program. Research and literature seminar presented by graduate students conducting research in synthesis and characterization of materials and fabrication of electronic and photonic devices. S/U grading.

C285. Materials Chemistry Laboratory. (5) Lecture, two hours; laboratory, eight hours. Requisites: courses 30AL, 110A, 113A, 171. Materials synthesis and physical properties of complex materials. Combines synthetic skills with fundamental physical understanding and characterization in approximately equal proportions to relate materials synthesis to materials function. Concurrently scheduled with course C185. Letter grading.

M370A. Integrated Science Instruction Methods. (4) (Same as Earth and Space Sciences M370A and Physics M370A.) Lecture, two hours; discussion, one hour; laboratory, one hour. Preparation: one introductory lower division year (including laboratory) each of chemistry, life sciences, and physics and at least two Earth science courses, preferably one with field experience. Classroom management, lesson design, assessment, history of science education. S/U or letter grading.

M370B. Integrated Science Instruction Methods. (4) (Same as Earth and Space Sciences M370B and Physics M370B.) Lecture, two hours; discussion, one hour; laboratory, one hour. Requisite: course M370A or Earth and Space Sciences M370A or Physics M370A. Application of learning theory to science instruction and classroom management, including use of technology, collaborative learning, laboratory safety, ethical issues, field experiences, and professional development. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

400. Safety in Chemical and Biochemical Research. (2) Lecture, two hours. Survey of safe laboratory practices for experimental research in organic, inorganic, and physical chemistry and biochemistry. Topics include laser safety, cryogenic hazards, high- and low-pressure experimentation, gas and carcinogen handling, chemical spills, fire extinguishing, and chemical disposal. S/U grading.

495. Teaching College Chemistry. (2) Seminar, two hours; discussion, two hours; 20 hours training during week prior to Fall Quarter. Course for teaching assistants designed to deal with problems and techniques of teaching college chemistry. S/U grading.

596. Directed Individual Study or Research. (2 to 16) Tutorial, to be arranged with faculty member who directs study or research. May be repeated for credit. S/U grading.

597. Preparation for M.S. Comprehensive Examination or Ph.D. Qualifying Examinations. (2 to 4) Tutorial, to be arranged. May be taken for maximum of 8 units. S/U grading.

598. Research for and Preparation of M.S. Thesis. (2 to 16) Tutorial, to be arranged. Each faculty member supervises research of M.S. students and holds research group meetings, seminars, and discussions with students. May be repeated for credit. S/U or letter grading.

599. Research for and Preparation of Ph.D. Dissertation. (2 to 16) Tutorial, to be arranged. Each faculty member supervises research of Ph.D. students and holds research group meetings, seminars, and discussions with students. May be repeated for credit. S/U or letter grading.

CHEMISTRY/ MATERIALS SCIENCE

*Interdepartmental Program
College of Letters and Science*

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Sarah H. Tolbert, Ph.D., *Chair*
Qibing Pei, Ph.D., *Vice Chair*

Faculty Administrative Committee

Xiangfeng Duan, Ph.D. (*Chemistry and Biochemistry*)
Bruce S. Dunn, Ph.D. (*Materials Science and Engineering*)
Yu Huang, Ph.D. (*Materials Science and Engineering*)
Richard B. Kaner, Ph.D. (*Chemistry and Biochemistry*)
Alexander J. Levine, Ph.D. (*Chemistry and Biochemistry*)
Vidvuds Ozolins, Ph.D. (*Materials Science and Engineering*)
Qibing Pei, Ph.D. (*Materials Science and Engineering*)
Sarah H. Tolbert, Ph.D. (*Chemistry and Biochemistry*)
Omar M. Yaghi, Ph.D. (*Chemistry and Biochemistry*)
Yang Yang, Ph.D. (*Materials Science and Engineering*)
Jeffrey I. Zink, Ph.D. (*Chemistry and Biochemistry*)

Scope and Objectives

The Chemistry/Materials Science major is designed for students who are interested in chemistry with an emphasis on material properties and provides students the opportunity to gain expertise in both chemistry and the science and engineering in materials such as semiconductors, photonic materials, polymers, biomaterials, ceramics, and nano-scale structures. Students explore the reactivity of such materials in different environments and gain understanding of how chemical compositions affect properties. The major provides appropriate preparation for graduate studies in many fields emphasizing interdisciplinary research, including chemistry, engineering, and applied science.

Undergraduate Study

Chemistry/Materials Science B.S.

Preparation for the Major

Required: Chemistry and Biochemistry 20A, 20B, 20L, 30A, 30AL, Mathematics 31A, 31B, 32A, 32B, 33B, Physics 1A, 1B, 1C, 4BL.

Transfer Students

Transfer applicants to the Chemistry/Materials Science major with 90 or more units must complete the following introductory courses prior to admission to UCLA: one year of general chemistry with laboratory for majors, one organic chemistry course, one and one half years of calculus, and one year of calculus-based physics with laboratory.

Transfer applicants to the organic materials concentration must complete a full year of organic chemistry with laboratory in addition to the other courses listed above.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Chemistry and Biochemistry 110A, 113A, 171, 172 or C180 or C181, C185, 4 units from 110B, C113B, 172, C174, C175, C176, C180, C181; Materials Science and Engineering 104, 110, 110L, 120, 121 or 150 or 160, 131, 8 units from 111, 121, 122, 132, 150, 160, 162, CM180; 7 laboratory units from Chemistry and Biochemistry 114, 184, Materials Science and Engineering 121L, 131L, 161L.

The following courses may be applied only once toward the major: Chemistry and Biochemistry 172, C180, C181, Materials Science and Engineering 121, 150, 160.

Organic Materials Concentration

Preparation for the Major

Required: Chemistry and Biochemistry 20A, 20B, 20L, 30A, 30AL, 30B, 30BL, 30C, 30CL, Mathematics 31A, 31B, 32A, 32B, 33B, Physics 1A, 1B, 1C, 4BL.

The Major

Required: Chemistry and Biochemistry 110A, 113A, 136, 171, C185, 4 units from 110B, C113B, C143A, 144, 172, C174, C175, C176, C180, C181; Materials Science and Engineering 104, 110, 110L, 120, 150, 4 units from 111, 121, 122, 131, 132, 160, 162, CM180; 7 laboratory units from Chemistry and Biochemistry 114, 184, Materials Science and Engineering 121L, 131L, 161L.

For further information, contact Angela Carpenter, Chemistry and Biochemistry, 4009 Young Hall, (310) 825-1859.

CÉSAR E. CHÁVEZ DEPARTMENT OF CHICANA AND CHICANO STUDIES

College of Letters and Science

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Alicia Gaspar de Alba, Ph.D., *Chair*

Professors

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Rosina M. Becerra, Ph.D.
Alicia Gaspar de Alba, Ph.D.
Reynaldo F. Macias, Ph.D.
Daniel G. Solórzano, Jr., Ph.D.
Edward E. Telles, Ph.D.
Abel Valenzuela, Jr., Ph.D.
José Luis Valenzuela, B.A.

Professor Emerita

Kris D. Gutiérrez, Ph.D.

Associate Professors

Eric Avila, Ph.D.
Leobardo F. Estrada, Ph.D.
Raúl A. Hinojosa-Ojeda, Ph.D.
María Cristina Pons, Ph.D.
Otto Santa Ana, Ph.D.

Assistant Professors

Leisy J. Abrego, Ph.D.
Maylei S. Blackwell, Ph.D.
David M. Hernández, Ph.D.
Robert Chao Romero, Ph.D.

Scope and Objectives

The mission of the UCLA César E. Chávez Department of Chicana and Chicano Studies is to train a new generation of scholars to research and analyze the life, history, and culture of Mexican-origin people within the U.S., as well as of other Latina/Latino and indigenous populations in the Americas.

Addressing local, national, and transnational contexts, the Chicana/Chicano studies curriculum at UCLA explores race, class, gender, and sexuality paradigms as they have shaped the history of the field, as well as new directions in the study of Chicanas/Chicanos and Latinas/Latinos, including (1) border and transnational studies, (2) expressive arts, (3) history, literature, and language of Americas, and (4) labor, law, and policy studies.

Departmental faculty members, situated in one of the most diverse cities in the world, utilize Los Angeles as a laboratory for studying the social transformations taking place in California, the Southwest, and the U.S. The department provides students with the interdisciplinary research tools necessary to advance knowledge in the field, provide academic leadership, and serve community needs with academic resources.

Undergraduate Study

Chicana and Chicano Studies B.A.

The B.A. program in Chicana and Chicano Studies is committed to the practice of different forms of scholarship and pedagogy and to the promotion of critical thinking about such issues as gender, sexuality, social action, language, race, ethnicity, class, assimilation/acculturation paradigms, and indigenous traditions. The literary and visual arts often function as vehicles for social change and creative empowerment, and so they constitute one focus of the curriculum, that aims to strike a balance among the social sciences, humanities, arts, and the professions. The major prepares students for graduate education in academic and professional fields and for a variety of positions that involve community and social service in the U.S. and abroad.

Preparation for the Major

Required: Chicana and Chicano Studies 10A, 10B, Spanish 5 or equivalent.

Transfer Students

Transfer applicants to the Chicana and Chicano Studies major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: one interdisciplinary Chicana/Chicano history and culture course, one interdisciplinary Chicana/Chicano social structure and contemporary conditions course, and five quarter terms of Spanish.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: A total of 11 upper division courses, including Chicana and Chicano Studies 101; one service learning course from 100SL or M170SL or from the approved list available in the department office each term; two related study courses from the approved list of courses outside the department (related study includes courses that provide a comparative perspective to Chicana and Chicano studies and/or a contextualization of Chicana and Chicano communities in the world); one advanced seminar course from 191 or another course by petition to the department chair; and a concentration of four courses in one area listed below and two courses in a second area:

Border and Transnational Studies: Chicana and Chicano Studies M110, 120, M124, M125, M126, 132, 143, M144, M147, 151, 152, 153, M154, M155, M156A, 163, 176, 184, 191

Expressive Arts: Chicana and Chicano Studies M103C, M103D, M103G, 104, M108A, M115, M116, 117, M135, M175, M185, M186A, M186AL, M186B, M186BL, M186C, M186CL, M187, 191

History, Culture, and Language of Americas: Chicana and Chicano Studies M105A, M105B,

109, M110, 111, M112, M114, M116, 131, 132, M133, M139, 141, 142, 143, M145A, M145B, M146, 157, M158, M159A, M159B, 160, 168A, 168B, 169, 171, M173, 181, M182, M183, 184, M187, 191

Labor, Law, and Policy Studies: Chicana and Chicano Studies M102, M106, M119, 120, M121, M122, 123, M127, M128, M130, 148, 149, 150, 151, 152, M156A, M156B, 165, 166, M174A, M174B, 177, 178, 179, 191

No more than 8 units of 188, 191, and 199 courses may be applied toward the major; enrollment in the courses must be approved in writing by the department chair.

Each major course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better.

Capstone Option

Students wishing to engage in a capstone experience in their senior year must enroll in one capstone seminar (Chicana and Chicano Studies 191). Capstone seminars are taught by departmental core faculty members and engage students in weekly reading, writing, discussion, analysis, and peer review of capstone projects that culminate in a public oral presentation of each student's work. A capstone project is an inquiry-based research paper, an expanded paper from a previous upper division course in the selected concentration, or a creative project developed in close consultation with a faculty mentor.

To enroll in capstone seminars, seniors must have completed all lower division preparation courses, the required theory course, and at least three courses in their primary concentration. It is expected that the resulting works demonstrate strong research and analytical skills, competence in interdisciplinary methodology, a mastery of basic knowledge in the field, including a foundation of race, class, gender, and sexuality epistemologies, and a broad understanding of the area of concentration. Capstone projects are archived and accessible through the departmental website.

Honors Program

The Chicana and Chicano Studies honors program provides the opportunity for motivated and dedicated students to undertake a year-long research or creative project with the guidance and supervision of a faculty member. The program is open to all juniors and seniors who have (1) a 3.5 grade-point average in the major, (2) a cumulative GPA of 3.0 or better, and (3) completed 90 or more total units, including Chicana and Chicano Studies 10A, 10B, 101, and one course from 89, 89HC, 189, or 189HC.

The application for admission must be submitted in Spring Quarter of the year prior to admission to the program, with the advice and consent of a faculty sponsor. The proposal, research, data collection, analysis, and writing of the thesis (or the creative equivalent to this process) take place in Chicana and Chicano Studies 198A, 198B, and 198C, which may not be

applied toward the major requirements. An honors thesis of at least 30 pages or a significant creative project is required.

Students who are currently undertaking the optional multidisciplinary senior thesis and who are eligible for the honors program may opt to switch to the honors program (provided it does not delay their progress toward the degree) with the approval of the department.

Optional Multidisciplinary Senior Thesis

Chicana and Chicano Studies majors have the option during their senior year to enroll in two 199 courses with the intention of producing an undergraduate thesis. The first term includes thesis conceptualization and formulation, along with preliminary data collection for the thesis. The second term entails completion of the data collection, analysis of the data, and writing of the thesis. Enrollment in the two 199 courses is with the advice and consent of a faculty member.

Chicana and Chicano Studies Minor

The Chicana and Chicano Studies minor complements study in another traditional field. Students participating in the minor are required to complete both a departmental major in another discipline and the Chicana and Chicano Studies minor.

To enter the minor, students must have an overall grade-point average of 2.0 or better, have completed 45 units, and file a petition with the student adviser in 7351 Bunche Hall.

Required Lower Division Courses (10 units): Chicana and Chicano Studies 10A, 10B.

Required Upper Division Courses (20 units minimum): Chicana and Chicano Studies 101 and four elective courses (20 units minimum) selected from the approved list (available in the department office each term).

No more than one upper division course may be applied toward both this minor and a major or minor in another department or program.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Chicana and Chicano Studies

Lower Division Courses

10A. Introduction to Chicana/Chicano Studies: History and Culture. (5) Lecture, three hours; discussion, one hour. Interdisciplinary survey of diverse historical experiences, cultural factors, and ethnic/racial paradigms, including indigenouness, gender, sexuality, language, and borders, that help shape Chicana/Chicano identities. Emphasis on critical reading and writing skills. Letter grading.

10B. Introduction to Chicana/Chicano Studies: Social Structure and Contemporary Conditions. (5) Lecture, three hours; discussion, one hour. Multidisciplinary examination of representation, ideologies, and material conditions of Chicanas/Chicanos, including colonialism, race, labor, immigration, poverty, assimilation, and patriarchy. Emphasis on critical reading and writing skills. Letter grading.

88. Sophomore Seminars: Chicana and Chicano Studies. (2) Seminar, two hours. Limited to lower division students. Readings and discussions designed to introduce students to current research in Chicana/Chicano studies. Culminating project may be required. May not be applied toward departmental major or minor requirements. May be repeated for credit with topic change. P/NP or letter grading.

97. Variable Topics in Chicana and Chicano Studies. (2) Seminar, two hours. Requisite: course 10A or 10B. Current topics and particular research methods in Chicana and Chicano studies through readings and other assignments. May be repeated for credit. P/NP or letter grading.

98. Professional Schools Seminars. (2) Seminar, two hours. Limited to 20 students. Introduction to issues of professional (nonacademic) settings and careers through readings and other assignments. P/NP or letter grading.

Upper Division Courses

100SL. Barrio Service Learning. (4) Seminar, two hours; field placement, eight hours. Limited to juniors/seniors. Service learning placement in community-based organization, labor union, or service-oriented nonprofit organization. Study of role that these organizations play in improvement and change of Chicana/Chicano communities. Students meet on regular basis with instructor and provide periodic reports of their experience. Individual contract with supervising faculty member required. Letter grading.

101. Theoretical Concepts in Chicana and Chicano Studies. (5) Lecture, four hours; discussion, one hour. Requisite: course 10A or 10B. Survey of different theoretical approaches to field of Chicana and Chicano studies. Letter grading.

M102. Mexican Americans and Schools. (4) (Same as Education M102.) Seminar, four hours. Theoretical and empirical overview of Chicana/Chicano educational issues in U.S., with special emphasis on disentangling effects of race, gender, class, and immigrant status on Chicana/Chicano educational attainment and achievement. Examination of how historical, social, political, and economic forces impact Chicana/Chicano educational experience. P/NP or letter grading.

M103C. Origins and Evolution of Chicano Theater. (5) (Same as Theater M103C.) Lecture, three hours. Designed for juniors/seniors. Exploration of development of Chicano theater from its beginning in legends and rituals of ancient Mexico to work of Luis Valdez (late 1960s). P/NP or letter grading.

M103D. Contemporary Chicano Theater: Beginning of Chicano Theater Movement. (5) (Same as Theater M103D.) Lecture, three hours. Analysis and discussion of historical and political events from 1965 to 1980, as well as theatrical traditions that led to emergence of Chicano theater. Letter grading.

M103G. Contemporary Chicano Theater: Chicano Theater since 1980. (5) (Same as Theater M103G.) Lecture, three hours. Requisite: course M103D. Analysis and discussion of Chicano theater since 1980, including discussion of Chicana playwrights, magic realism, Chicano comedy, and Chicano performance art. Letter grading.

104. Comedy and Culture: Your Humorous Life. (4) Lecture, four hours. How to mine unique humorous life adventures from students' cultural identities and turn those distinct experiences into humorous literature. Students acquire skills to read their stories out loud, with emphasis on comedy in their pieces through art of storytelling and performance. P/NP or letter grading.

M105A. Early Chicana/Chicano Literature. (5) (Same as English M105A.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Survey of Chicana/Chicano literature from 16th century through Zoot Suit Riots (1943), including both oral and written forms of literary expression (corridos, folktales, essays, memoirs, novels, and poetry) by such authors as Cabeza de Vaca, Juan Seguin, Americo Paredes, and Maria Ruiz Amparo Burton. P/NP or letter grading.

M105B. Recent Chicana/Chicano Literature. (5) (Same as English M105B.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Survey of Chicana/Chicano literature since 1943, beginning with reactions to Zoot Suit Riots and continuing through Chicana/Chicano Movimiento to contemporary literature. Drama, novels, memoirs, essays, and poetry by such authors as Luis Valdez, Cherrie Moraga, Sandra Cisneros, Rodolfo Anaya, Rolando Hinojosa, Oscar Zeta Acosta, and Ana Castillo. P/NP or letter grading.

M105C. Gender, Fiction, and Social Change. (4) (Formerly numbered 140.) (Same as English M105C.) Lecture, four hours. Enforced requisite: English Composition 3 or 3H. Study of essays, novels, short narratives, and plays written by Chicanas/Latinas. Required readings represent writers with focus on themes of identity, ethnicity, gender, and cross-border experiences leading to social change. Critical reading and analysis of works, searching for strengths and flaws, to point out unique contribution of each work to greater body of U.S. literature. P/NP or letter grading.

M106. Health in Chicano/Latino Population. (4) (Same as Public Health M106.) Lecture, four hours; discussion, one hour. Designed for juniors/seniors. Examination of Chicano/Latino health status through life expectancy, causes of death, reportable diseases, services utilization, provider supply, and risk behaviors within demographic/immigration changes. Binational review of health effects in U.S. and Mexico. Letter grading.

M108A. Music of Latin America: Mexico, Central America, and Caribbean Isles. (5) (Same as Ethnomusicology M108A.) Lecture, four hours; discussion, one hour. Survey of traditional and contemporary musical culture. P/NP or letter grading.

109. Chicana/Chicano Folklore. (4) Lecture, four hours. Examination of roots of Chicana/Chicano folklore in Mexican oral tradition in mid-19th century and development of Chicana/Chicano folklore to present day. P/NP or letter grading.

M110. Chicana Feminism. (4) (Same as Women's Studies M132A.) Lecture, three hours. Requisite: course 10A or Women's Studies 10. Examination of theories and practices of women who identify as "Chicana feminist." Analysis of writings of Chicanas who do not identify as feminist but whose practices attend to gender inequities faced by Chicanas both within Chicana/Chicano community and dominant society. Attention to Anglo-European and Third World women. P/NP or letter grading.

111. Chicana/Chicano and Latina/Latino Intellectual Traditions. (5) Lecture, five hours. General view of philosophical, cultural, and social thought as well as intellectual traditions in Americas. Roles of writers as intellectuals and cultural/political strategists, and as definers of (national) identity, social reality, and struggles of liberation. Letter grading.

M112. Ethnic Groups and Their Bibliographies: Latino History and Culture. (4) (Same as Information Studies M111C.) Lecture, four hours. Introduction to bibliographical and research tools and methods for students with interests in Latino history and culture. P/NP or letter grading.

M114. Chicanos in Film/Video. (5) (Same as Film and Television M117.) Lectures/screenings, five hours; discussion, one hour. Goal is to gain nuanced understanding of Chicano cinema as political, socio-economic, cultural, and aesthetic practice. Examination of representation of Mexican Americans and Chicanos in four Hollywood genres—silent "greaser" films, social problem films, Westerns, and gang

films—that are major genres that account for films about or with Mexican Americans produced between 1908 and 1980. Examination of recent Chicano-produced films that subvert or signify on these Hollywood genres, including *Zoot Suit*, *Ballad of Gregorio Cortez*, and *Born in East L.A.* Consideration of shorter, more experimental work that critiques Hollywood image of Chicanos. Guest speakers include both pioneer and up-and-coming filmmakers. P/NP or letter grading.

M115. Musical Aesthetics in Los Angeles. (4) (Same as Ethnomusicology M115.) Lecture, three hours. Confronting aesthetics from classical perspective of art as intuition, examination on cross-cultural basis of diverse musical contexts within vast multicultural metropolis of Los Angeles, with focus on various musical networks and specific experiences of Chicano/Latino, African American, American Indian, Asian, rock culture, Western art music tradition, and commercial music industry. P/NP or letter grading.

M116. Chicano/Latino Music in U.S. (5) (Same as Ethnomusicology M116.) Lecture, four hours; discussion, one hour. Historical and analytical examination of musical expression of Latino peoples who have inhabited present geographical boundaries of U.S. P/NP or letter grading.

117. Chicana/Chicano Images in Mexican Film and Literature. (4) Lecture, four hours. Preparation: adequate understanding of Spanish-language films without English subtitles. Throughout its rich history, spanning more than 100 years, Mexican cinema has produced great variety of films that deal with Chicana/Chicano experience. Like its U.S. counterpart, Mexican cinematic discourse portrayal of Chicanas/Chicanos has been plagued by use of stereotypes that limit visual representation of Chicanas/Chicanos. Exploration of causes and effects for such obtuse cinematic representation. P/NP or letter grading.

M118. Student-Initiated Retention and Outreach Issues in Higher Education. (4) (Same as Afro-American Studies M118, American Indian Studies M118, and Asian American Studies M168.) Lecture, four hours. Exploration of issues in outreach and retention of students in higher education, especially through student-initiated programs, efforts, activities, and services, with focus on UCLA as case. May be repeated twice for credit. Letter grading.

M119. Chicano/Latino Community Formation: Critical Perspectives and Oral Histories. (4) (Formerly numbered 119.) (Same as Labor and Workplace Studies M123.) Lecture, four hours. Analysis of historical formation and development of Chicano/Latino communities in 20th century, with focus on labor, immigration, economic structures, electoral politics, and international dimensions. Letter grading.

120. Immigration and Chicano Community. (4) Lecture, three hours. Discussion on relationship between international immigration and development of Chicana/Chicano community. Examination of U.S. immigration policy and relationship between Mexican-origin population and other Latin American immigrants. P/NP or letter grading.

M121. Issues in Latina/Latino Poverty. (4) (Same as Labor and Workplace Studies M121 and Urban Planning M140.) Lecture, four hours. Examination of nature and extent of urban and rural poverty confronting Latina/Latino population in U.S. Special emphasis on antipoverty policies of government and nonprofit organizations and social planning and economic development strategies. Attention also to literature on underclass. Letter grading.

M122. Planning Issues in Latina/Latino Communities. (4) (Same as Labor and Workplace Studies M121 and Urban Planning M171.) Lecture, four hours. Exploration of socioeconomic, demographic, and political forces that shape low-income communities and analyses of planning intervention strategies. Emphasis on community and economic development and environmental equity. Letter grading.

123. Applied Research Methods in Latino Communities. (4) Lecture, three hours. Through combination of lectures, key readings, and several experiments, introduction to several applied research methods that are highly effective in producing sound and method-

ologically rigorous studies on poor and/or Latino communities, including important data that can be used for critical analysis and policy recommendations. Letter grading.

M124. Latino Immigration History and Politics. (4) (Same as Honors Collegium M143.) Lecture, four hours. Overview of immigration in 20th century, examining social, political, and economic contexts out of which different waves of Latin American immigration to U.S. has occurred. Letter grading.

M125. U.S./Mexico Relations. (4) (Formerly numbered 125.) (Same as Labor and Workplace Studies M125.) Lecture, four hours. Examination of complex dynamics in relationship between Mexico and U.S., using political economy approach to study of asymmetrical integration between advanced industrial economies and developing countries. P/NP or letter grading.

M126. Politics of Crisis: Migration, Identity, and Religion. (4) (Same as Honors Collegium M145.) Lecture, three hours. Examination of individual and collective religious response of Latin Americans and Latinas/Latinos in U.S. to dislocations, displacements, and fragmentation produced by conquest, colonization, underdevelopment, globalization, and migration. Letter grading.

M127. Farmworker Movements, Social Justice, and AFL-CIO. (4) (Formerly numbered 127.) (Same as Labor and Workplace Studies M127.) Lecture, four hours. Designed for juniors/seniors. Historical and social context of farmworker organizing, including its multiracial origins and its influence on fight for equality of working women. Specific focus on organizing of United Farm Workers and Farm Laborers Organizing Committee, and their relationship to AFL-CIO, other unions, and their influence on Chicano Movement. Letter grading.

M128. Race, Gender, and U.S. Labor. (4) (Formerly numbered 128.) (Same as Labor and Workplace Studies M128.) Lecture, four hours. Designed for juniors/seniors. Introduction to history and organization of labor movement in U.S. and North America. Discussion of race, class, and gender issues raised within movement, and various strategies for social change and economic equity pursued through organized labor and other means. Letter grading.

129. Field Research Methods in Labor and Workplace Studies. (5) Lecture, four hours; field studies, two hours. Designed for juniors/seniors. Discussion of roles of union and nonunion worker organizations in society and in improvement of quality of life for Latina/Latino communities. Review and application of field research methods to labor organizations and workplace sites, especially participant observation, interview techniques, and grounded theory and other methods of data analysis. Letter grading.

M130. Worker Center Movement: Next Wave Organizing for Justice for Immigrant Workers. (4) (Same as Afro-American Studies M167, Asian American Studies M166C, and Labor and Workplace Studies M167.) Seminar, three hours. Development of theoretical and practical understanding of worker center movement, with focus on historical factors that have led to emergence and growth of worker centers. Role of worker centers in promoting multiethnic and multiracial campaigns for workplace and economic justice. Transnational cross-border solidarity issues and rights of undocumented workers. P/NP or letter grading.

131. Barrio Popular Culture. (4) Lecture, three hours. Construction of model by which to organize study of Chicana/Chicano popular culture by focusing on barrio as metaphor for community. Examination of beliefs, myths, and values of Chicana/Chicano culture and representations in icons, heroes, legends, stereotypes, and popular art forms through literature, film, video, music, mass media, and oral history. Letter grading.

132. Border Consciousness. (4) Lecture, three hours. Investigation through history, popular culture, and mass media of bilingual and bicultural identities produced by geographical and cultural space between Mexico and U.S. Special attention to border consciousness as site of conflict and resistance. Letter grading.

M133. Chicana Lesbian Literature. (4) (Same as Lesbian, Gay, Bisexual, and Transgender Studies M133 and Women's Studies M133.) Lecture, three hours. Exploration of intersection of radical First and Third World feminist politics, lesbian sexuality and its relationship to Chicana identity, representation of lesbianism in Chicana literature, meaning of *familia* in Chicana lesbian lives, and impact of Chicana lesbian theory on Chicana/Chicano studies. Letter grading.

M135. Bilingual Writing Workshop. (4) (Same as Women's Studies M135C.) Seminar, four hours. Writing sample required on first day of class; access to course Web page mandatory; need not be bilingual to enroll. Technical instruction, analysis, and theoretical discussion of bilingual creative expression, with focus on specific genre (i.e., autobiography, poetry, fiction). Emphasis on memory, identity, gender, and sexuality. Central theme of bilingualism as politics and aesthetics. Peer critique of weekly writing assignments. Letter grading.

M139. Topics in Chicana/Chicano Literature. (5) (Same as English M179B.) Seminar, three hours. Enforced prerequisite: English Composition 3 or 3H. Variable specialized studies course in Chicana/Chicano literature. Topics include labor and literature; Chicana/Chicano visions of Los Angeles; immigration, migration, and exile; autobiography and historical change; Chicana/Chicano journalism; literary New Mexico; specific literary genres. May be repeated for credit. P/NP or letter grading.

141. Chicana and Latin American Women's Narrative. (4) Lecture, four hours. Preparation: reading knowledge of Spanish (level 4). Analyses, comparisons, and discussion of narrative literary production of U.S. Chicana writers and their Latin American counterparts in English and Spanish, with particular focus on how each group deals with gender, ethnic, and class issues. Letter grading.

142. Mesoamerican Literatures. (4) Lecture, four hours. Preparation: reading knowledge of Spanish (level 4). Survey of premises of Mesoamerican literatures, including myths, lyrics, poetry, religious celebrations, rituals, and drama, specifically of Aztec and Mayan peoples prior to European contact. Letter grading.

143. Mestizaje: History of Diverse Racial/Cultural Roots of Mexico. (4) Lecture, four hours. Historical examination of diverse racial and cultural roots of Chicanas and Chicanos. Utilizing theoretical frameworks of *mestizaje*, *Aztlán*, *indigenismo*, *La Raza Cósmica*, and *la tercera raiz*, examination of some important groups who have contributed to formation of Mexican national culture. Development of race relations in Mexico during colonial period, with focus on analysis of Nahuas (Aztecs), Mixtecs, Spaniards, and African slave population. Analysis of Asian immigration to Mexico and California during national period, specifically examination of migration and adaptation experiences of Chinese, Japanese, and Punjabi-Indian immigrants. P/NP or letter grading.

M144. Women's Movement in Latin America. (4) (Same as Labor and Workplace Studies M144 and Women's Studies M144.) Lecture, four hours. Course on women's movements and feminism in Latin America and Caribbean to examine diverse social movements and locations from which women have launched political and gender struggles. Discussion of forms of feminism and women's consciousness that have emerged out of indigenous rights movements, environmental struggles, labor movements, Christian-based communities, peasant and rural organizing, and new social movements that are concerned with race, sexuality, feminism, and human rights. Through comparative study of women's movements in diversity of political systems as well as national and transnational arenas, students gain understanding of historical contexts and political conditions that give rise to women's resistance, as well as major debates in field of study. P/NP or letter grading.

M145A-M145B. Introduction to Chicano Literature. (4-4) (Same as Spanish M145A-M145B.) Lecture, three hours. Prerequisite: Spanish 25 or 27. Introduction to texts representative of Chicano literary heritage. Sampling of genres, as well as historical and geo-

graphical settings and points of view characteristic of work written by Chicanos during 20th century. Most required reading is in Spanish. Bilingual and English works are included and discussed. Reading and analysis of number of important scholarly and critical statements pertaining to characteristics and development of Chicano literary corpus. Letter grading. **M145A.** Literature to 1960; **M145B.** Literature after 1960.

M146. Chicano Narrative. (4) (Same as Spanish M146.) Lecture, three hours. Introduction to major narrative genres in Chicana/Chicano literary tradition—Corrido, Semblanza, chronicle, autobiography, novel, romance, and satire. Emphasis on way in which narrative forms are formed by and address specific social/historical problems. P/NP or letter grading.

M147. Transnational Women's Organizing in Americas. (4) (Same as Women's Studies M147C.) Lecture, four hours. Feminist theories of transnational organizing. Examination of gender and race as central to processes of globalization and essential to economic and political struggles encompassed in transnational power relations. Exploration of how questions of race and gender influence global economic policies and impact local actors and their communities. In time when people, capital, cultures, and technologies cross national borders with growing frequency, discussion of process of accelerated globalization has been linked to feminization of labor and migration, environmental degradation, questions of diaspora, sexuality, and cultural displacement, as well as growing global militarization. Problems and issues created by globalization and cultural, social, and political responses envisioned by transnational organizing. P/NP or letter grading.

148. Politics of Diversity: Race, Conflicts, and Coalitions. (4) Lecture, four hours. Examination of Chicana/Chicano intergroup relations and political coalitions with other Latinos, African Americans, Asian and Pacific Islanders, and Euro-Americans, especially in communities undergoing rapid changes in demographic composition. Letter grading.

149. Gendered Politics and Chicana/Latina Political Participation. (4) Lecture, four hours. Examination of Chicanas and Latinas as participants, organizers, and leaders in communities, workplaces, labor unions, and government. Survey of Chicanas/Latinas in politics and as policymakers in appointed and elected offices. Analysis of gendering of politics and political behavior. Letter grading.

150. Affirmative Action: History and Politics. (4) Lecture, four hours. Historical examination of political economic context in which affirmative action policies and programs were conceived and implemented. Review of impact on Chicanas/Chicanos, Latinas/Latinos, and other communities. Specific analysis of university admissions, hiring and contracting practices, and state initiatives. Letter grading.

151. Human Rights in Americas. (4) Lecture, four hours. International human rights law and U.S. foreign policy in context of historical, political, social, and legal issues and court decisions involving U.S. and its role and relations with governments and institutions throughout Americas. Historical and contemporary development of regional and international law, institutions, law, and norms related to promotion and protection of human rights. P/NP or letter grading.

152. Disposable People: U.S. Deportation and Repatriation Campaigns. (4) Seminar, four hours. Examination of U.S. deportation campaigns targeted at Mexican and other Latin American workers, residents, and U.S.-born citizens. Addressing various periods of large-scale highly organized deportation and repatriation efforts after violent conquest of Mexican territories in 19th century, during economic and social panic of Great Depression in 1930s and Operation Wetback in 1950s, and through turn of 21st century, examination of criminalization of Mexican and Latino immigrants, police and military tactics of federal government, and administrative and legal mechanisms and institutions that have been created to facilitate deportation. Provides grounded knowledge of U.S. deporta-

tion history to contextualize broader national debate about immigration reform that is occurring today. P/NP or letter grading.

M154. Contemporary Issues among Chicanas. (4) (Same as Women's Studies M132B.) Lecture, two and one-half hours. Requisite: Women's Studies 10. Overview of conditions facing Chicanas in U.S., including issues on family, immigration, reproduction, employment conditions. Comparative analysis with other Latinas. P/NP or letter grading.

M155. Latinos in U.S. (4) (Same as Sociology M155.) Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Exploration of history and social conditions of Latinos in Los Angeles as well as nationally, with particular emphasis on their location in larger social structure and on comparisons with other minority groups. Topics include migration, family, education, and work issues. P/NP or letter grading.

M156A. Immigrant Rights, Labor, and Higher Education. (4) (Same as Asian American Studies M166A and Labor and Workplace Studies M166A.) Seminar, three hours. New immigrant rights movement, with particular attention to labor and higher education. Overview of history of immigrant rights movement and examination of development of coalition efforts between labor movement and immigrant rights movement nationally and locally. Special focus on issue of immigrant students in higher education, challenges facing undocumented immigrant students, and legislative and policy issues that have emerged. Students conduct oral histories, family histories, research on immigration and immigrant rights, write poetry and spoken word about immigrant experience, and work to collectively develop student publication on immigrant students in higher education. P/NP or letter grading.

M156B. Research on Immigration Rights, Labor, and Higher Education. (4) (Same as Asian American Studies M166B and Labor and Workplace Studies M166B.) Seminar, two hours. Requisite: course M156A. Expansion of research conducted by students in course M156A involving oral histories, research on immigration/labor/higher education, and evaluation of legislation and legal issues impacting undocumented students. Letter grading.

157. Chicano Movement and Its Political Legacies. (4) Lecture, four hours. Collective examination of Chicano Movement of 1960s and 1970s and analysis of its political legacies. Grounded in historiographic inquiry and social movement theory, investigation of mobilization of diverse sectors of *el movimiento*, including students, workers, artists, youth, community activists, and women. Exploration of myriad issues and struggles that compelled Chicanas/Chicanos to resist such as land and labor rights, education, anti-war movements, community autonomy, police brutality, political inclusion, cultural recovery, racism, sexism, and class exploitation. Investigation of diverse ideologies, debates, and legacies of Chicano Movement through analysis of Chicana/Chicano motivations for organizing, modes, strategies, innovations, challenges, and articulation of new political subjectivities. P/NP or letter grading.

M158. Chicana Historiography. (4) (Same as History M151D and Women's Studies M157.) Lecture, four hours. Examination of Chicana historiography, looking closely at how practice of writing of history has placed Chicanas into particular narratives. Using Chicana feminist approaches to study of history, revisiting of specific historical periods and moments such as Spanish Conquest, Mexican Period, American Conquest, Mexican Revolution, and Chicano Movement to excavate untold stories about women's participation in and contribution to making of Chicana and Chicano history. P/NP or letter grading.

M159A. History of Chicano Peoples. (4) (Same as History M151A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey lecture course on historical development of Mexican (Chicano) community and people of Mexican descent (Indio-Mestizo-Mulato) north of Rio through 17th, 18th, and 19th centuries, with special focus on labor and politics. Provides integrated understanding

of change over time in Mexican community by inquiry into major formative historical forces affecting community. Social structure, economy, labor, culture, political organization, conflict, and international relations. Emphasis on social forces, class analysis, social, economic, and labor conflict, ideas, domination, and resistance. Developments related to historical events of significance occurring both in U.S. and Mexico. Lectures, special presentations, reading assignments, written examinations, library and field research, and submission of paper. P/NP or letter grading.

M159B. History of Chicano Peoples. (4) (Same as History M151B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey lecture course on historical development of Mexican (Chicano) community and people of Mexican descent in U.S. through 20th century, with special focus on labor and politics. Provides integrated understanding of change over time in Mexican community by inquiry into major formative historical and policy issues affecting community. Within framework of domination and resistance, discussion deals with social structure, economy, labor, culture, political organization, conflict, and ideology. Developments related to historical events of significance occurring both in U.S. and Mexico. Lectures, special presentations, reading assignments, written examinations, library and/or field research, and submission of paper. P/NP or letter grading.

160. Introduction to Chicana/Chicano Speech in American Society. (4) Lecture, three hours. Survey course presenting (1) basic elements of Chicano language use, including history of Chicano languages, types and social functions of Chicano speech (*pachuco, caló*, Spanglish), sexist language, and multi-lingualism and monolingualism and (2) major social issues associated with language use by Chicanos and other urban ethnic populations. Letter grading.

163. Bilingual Advantage: Spanish Language Topics on Chicana/Chicano and Latin American Cultures. (5) Lecture, four hours; discussion, one hour. Requisite: Spanish 4. Review of Spanish language literature, newsprint, radio, and television in U.S., providing for student development of academic skills in Spanish. Comparison with Spanish language mass media in other parts of world. Letter grading.

165. Language in Education. (4) Lecture, three hours. Examination of language issues pertinent to educational systems, including language inequity, literacy, testing, and socialization, as well as institutional ideologies. Letter grading.

166. Paulo Freire for Chicana/Chicano Classroom. (4) Seminar, four hours. Introduction to pedagogy of Paulo Freire and examination of historical and contemporary problems circumscribing Chicana/Chicano education. Central focus to offer Freirian alternative to answer theoretical, methodological, practical, and policy questions about schooling of Chicanas/Chicanos in U.S. P/NP or letter grading.

168A. Latinos: Print Media. (4) (Formerly numbered 168.) Lecture, four hours. Examination of systemic (mis)representations of Latinos by print media source (*Los Angeles Times*) by means of critical discourse analysis and metaphor theory. Investigation of empirical basis for theories of racism in language in this context. Student projects range from immigration to education and crime to culture. Letter grading.

168B. Latinos: Television News. (4) Lecture, four hours. Requisite: course 168A. Study of multimodal (visual, graphic, spoken, audio, and text) images disseminated by television news programs to learn how nation comes to their understanding of Latinos. Development of critical visual interpretive acuity through semiotics training and analysis of actual television news stories. Letter grading.

169. Representations of Indigenous Peoples in Americas. (4) Lecture, four hours. Strongly recommended prerequisite: course 101. Introduction to different forms of representation of indigenous peoples and their presence in Americas, with emphasis on Mesoamerica and Andes. How indigenous images are expressed, perceived, and constructed at point of contact with Europeans during development of indi-

genismo and in current period. Discussion of how these relate to Chicana/Chicano identity construction. Letter grading.

M170SL. Latinos, Linguistics, and Literacy. (5) (Formerly numbered M170.) (Same as Applied Linguistics M172SL, Honors Collegium M128SL, and Spanish M172SL.) Seminar, four hours; field project, four to six hours. Recommended prerequisite: Spanish 100A. In-depth study of various topics related to literacy, including different definitions of literacy, programs for adult preliterates, literacy and gender, approaches to literacy (whole language, phonics, Freire's liberation pedagogy), history of writing systems, phoneme as basis for alphabetic writing, and national literacy campaigns. Required field project involving Spanish-speaking adults in adult literacy programs. P/NP or letter grading.

171. Hegemonic Humor: Mass-Media Commercial Comedy. (4) Lecture, four hours. Hegemonic humor directs laughter of more powerful people against those with less power. In this case laughter becomes weapon used against Latinos and immigrants. With rise of Latinos in last decade, there has been increase of various guises of anti-Latino hegemonic humor in commercial mass-mediated popular culture. Exploration of theorizing, as well as today's myriad examples, of such humor to develop critical literacy of social work it accomplishes. Letter grading.

172. Chicana and Chicano Ethnography. (4) (Formerly numbered M172V.) Lecture, four hours. Culture change theory encompasses such issues as innovation, syncretism, colonialism, modernization, urbanization, migration, and acculturation. Examination of methods anthropologists/ethnographers use in studying and analyzing culture change within ethnohistorical background of Mexican and Mexican American people to clarify social and cultural origins of modern habits and customs and, more importantly, unravel various culture change threads of that experience. Topics include technology and evolution, Indian nation-states, miscegenation, peasantry, expansionism, industrialization, immigration, ethnicity, and adaptation. Field project on some aspect of culture change required. P/NP or letter grading.

M173. Nonviolence and Social Movements. (4) (Same as Afro-American Studies M173 and Labor and Workplace Studies M173.) Lecture, three hours; discussion, one hour. Overview of nonviolence and its impact on social movements both historically and in its present context in contemporary society, featuring lectures, conversations, films, readings, and guest speakers. Exploration of some historic contributions of civil rights struggles and role of nonviolent action throughout recent U.S. history. Examination of particular lessons of nonviolent movements as they impact social change organizing in Los Angeles. P/NP or letter grading.

M174A-M174B. Restoring Civility: Understanding, Using, and Resolving Conflict. (4-4) (Same as Education M145A-M145B.) Lecture, one hour; discussion, three hours. Designed for students who want to learn principles of dialogue and mediation, as alternatives to violence, and practice how to apply them in educational settings. In Progress (M174A) and letter (M174B) grading.

M175. Chicana Art and Artists. (4) (Same as Art M184 and World Arts and Cultures M128.) Lecture, four hours. Introduction to Chicana art and artists. Examination of Chicana aesthetic. Chicana artists have developed unique experience and identity as artists and Chicanas. Letter grading.

176. Globalization and Transnationalism: Local Historical Dynamics and Praxis. (4) Lecture, four hours. Analysis of dynamics of Chicana/Chicano transnational community formation in comparative global perspective, explored both as historical result of and key future actor in localized dynamics of transnationalization in California's relation to world. Analysis of Chicana/Chicano experience in California as both highly linked node and localized microcosm of dynamics of globalization that is both affected by as well as influences course of alternative scenarios of globalization. Designed to help students develop criti-

cal political economy analysis of interplay between globalization and localized transnational dynamics that together are giving meaning to and constructing new social identities and strategies for struggle throughout world. P/NP or letter grading.

177. Latino Social Policy. (4) Lecture, three hours. Examination of social welfare of Latinos (Chicanos, Puerto Ricans, and Cubans) in U.S. through assessment and critical analysis of social policy issues affecting them. Survey of social, economic, cultural, and political circumstances affecting ability of Latinos to access public benefits and human services. Letter grading.

178. Latinas/Latinos and Law: Comparative and Historical Perspectives. (4) Lecture, four hours. Survey of experiences of Latinas/Latinos with U.S. legal system. Examination of landmark appellate decisions and litigation efforts in jury service, voting rights, language, public accommodations, education, and other areas. Critical assessment of role of legal principles and litigation in improving Latina/Latino position within U.S. society. Letter grading.

179. Language Politics and Policies in U.S.: Comparative History. (4) Lecture, four hours. Historical survey of language policies and language groups in U.S. as context to understanding social, legal, and political constraints on bilingualism. Review of federal, state, and institutional language policies and politics, with focus on schooling, administration of government, justice, and workplace. Letter grading.

181. History of Chicana/Chicano Los Angeles, 20th Century. (4) Lecture, four hours. History of Mexican American people in 20th-century Los Angeles. Readings and lectures emphasize formation of regional identity among Mexican Americans in Los Angeles and their significance to emergence of multicultural metropolis. Letter grading.

M182. Understanding Whiteness in American History and Culture. (4) (Same as History M151C.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. History, construction, and representation of whiteness in American society. Readings and discussions trace evolution of "white" identity and explore its significance to historical construction of race class in American history. Letter grading.

M183. History of Los Angeles. (4) (Same as History M155.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Social, economic, cultural, and political development of Los Angeles and its environs from time of its founding to present. Emphasis on diverse peoples of area, changing physical environment, various interpretations of city, and Los Angeles' place among American urban centers. P/NP or letter grading.

184. History of U.S./Mexican Borderlands. (4) Lecture, four hours. Survey of historic and geographic diversity of Chicana/Chicano identity and culture, with emphasis on regional communities of California, New Mexico, and Texas in Spanish/Mexican borderlands as situated within U.S. national context. Letter grading.

M185. Whose Monument Where: Course on Public Art. (4) (Same as Art M185 and World Arts and Cultures M126.) Lecture, four hours. Recommended corequisite: course M186A, M186B, or M186C. Examination of public monuments in U.S. as basis for cultural insight and critique of American values from perspective of artist. Use of urban Los Angeles as textbook in urban space issues such as who is "public," what is "public space" at end of 20th century, what defines neighborhoods, and do different ethnic populations use public space differently. P/NP or letter grading.

M186A. Beyond Mexican Mural: Beginning Muralism and Community Development. (4) (Same as Art M186A and World Arts and Cultures M125A.) Studio/lecture, four hours. Corequisite: course M186AL. Investigation of muralism as method of community education, development, and empowerment. Exploration of issues through development of large-scale collaborative digitally created image and/or painting for

placement in community. Students research, design, and work with community participants. P/NP or letter grading.

M186AL-M186BL-M186CL. Beyond Mexican Mural: Muralism and Community Laboratory. (4-4-2) (Same as Art M186AL-M186BL-M186CL and World Arts and Cultures M125AL-M125BL-M125CL.) Course M186AL is requisite to M186BL, which is requisite to M186CL. Mural and Digital Laboratory is art studio housed at Social and Public Art Resource Center in Venice, CA, where students work in community-based setting. Open to students during scheduled hours with laboratory tech support, it offers instruction as students independently and in collaborative teams research, design, and produce large-scale painted and digitally generated murals to be placed in community setting. P/NP or letter grading. **M186AL.** Beginning. Laboratory, four hours. Corequisite: course M186A; **M186BL.** Intermediate. Laboratory, four hours. Requisites: courses M186A, M186AL. Corequisite: course M186B; **M186CL.** Advanced. Laboratory, two hours. Corequisite: course M186C.

M186B. Beyond Mexican Mural: Intermediate Muralism and Community Development. (4) (Same as Art M186B and World Arts and Cultures M125B.) Studio/lecture, four hours. Requisites: courses M186A, M186AL. Corequisite: course M186BL. Continuation of investigation of muralism as method of community education, development, and empowerment. Exploration of issues through development of large-scale collaborative digitally created image and/or painting for placement in community. Students research, design, and work with community participants. Continuation of project through states of production to full scale and community approval. P/NP or letter grading.

M186C. Beyond Mexican Mural: Advanced Muralism and Community Development. (4) (Same as Art M186C and World Arts and Cultures M125C.) Studio/lecture, six hours. Requisites: courses M186B, M186BL. Corequisite: course M186CL. Continuation of investigation of muralism as method of community education, development, and empowerment. Exploration of issues through development of large-scale collaborative digitally created image and/or painting for placement in community. Students research, design, and work with community participants. Continuation of project through installation, documentation, and dedication, with work on more advanced independent projects. P/NP or letter grading.

188. Special Courses in Chicana and Chicano Studies. (4) Seminar, three hours. Some sections may require prior coursework. Departmentally sponsored experimental or temporary courses, such as those taught by visiting faculty members. May be repeated for credit. P/NP or letter grading.

190. Research Colloquia in Chicana and Chicano Studies. (2) Seminar, two hours. Designed to bring together students undertaking supervised tutorial research in seminar setting with one or more faculty members to present reports, discuss research methodologies, share findings, and provide feedback on each other's work. Culminates in public "summit" of Chicana/Chicano student research at which students expected to present polished position papers on their research. May be repeated for credit. P/NP grading.

191. Variable Topics Research Seminars: Chicana and Chicano Studies. (4) Seminar, three hours. Limited to juniors/seniors. Research seminar organized around readings and engaged discussion of critical topic of interest in field. Exploration of issue, its theoretical implication for field, and practical implications for communities. Final research project required. May be repeated for credit. P/NP or letter grading.

192. Undergraduate Practicum in Chicana and Chicano Studies. (4) Seminar, four hours. Requisite: course 10A or 10B. Limited to juniors/seniors. Training and supervised practicum for advanced undergraduate students who assist in preparation of materials and/or development of innovative programs or courses of study under guidance of faculty members in small group settings or one-on-one setting. May not

be applied toward departmental major or minor elective requirements. May be repeated for credit. P/NP or letter grading.

193. Readings/Speaker Series Seminars: Chicana and Chicano Studies. (1) Seminar, one hour. Limited to undergraduate Colloquia Series students. Reading of journal articles associated with speaker topics to enliven postcolloquia discussions. May not be applied toward departmental major or minor elective requirements. May be repeated for credit. P/NP grading.

194. Research Group Seminars: Chicana and Chicano Studies. (2) Seminar, one hour. Designed for undergraduate students who are part of research group. Discussion of current literature in field or of research of faculty members or students. Use of specific research method on selected topic. May be repeated for credit with topic change. P/NP grading.

195. Community Internships in Chicana and Chicano Studies. (4) Tutorial, two hours; field placement, eight hours. Limited to juniors/seniors. Internship in supervised setting in community agency or business. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for credit. Individual contract with supervising faculty member required. P/NP or letter grading.

196. Research Apprenticeship in Chicana and Chicano Studies. (2 to 4) Tutorial, three hours per week per unit. Requisite: course 10A or 10B. Limited to juniors/seniors. Entry-level research apprenticeship for upper division students under guidance of faculty mentor. Participation in all aspects of research project, including library research, reading materials, and compilation of data, with scheduled meetings throughout term with faculty mentor for discussion of project. May not be applied toward departmental major or minor requirements. May be repeated under different contract; consult department. Individual contract required. P/NP grading.

197. Individual Studies in Chicana and Chicano Studies. (2 to 4) Tutorial, four hours. Requisites: courses 10A, 10B. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for maximum of 8 units. Individual contract required. P/NP or letter grading.

198A-198B-198C. Honors Research in Chicana and Chicano Studies. (2 each) Tutorial, one hour. Limited to junior/senior honors program students. May be repeated for credit. Individual contract required. Letter grading. **198A.** Thesis Conceptualization. Requisites: courses 10A, 10B, 101, and 89 or 189. Conceptualization and formulation of project in Fall Quarter under direct supervision of faculty member. Preliminary data collection on topic and production of proposal for thesis required. **198B.** Annotated Bibliography/Literature Review. Requisite: course 198A. Development of research skills in Winter Quarter to produce extensive annotated bibliography or literature review on thesis topic. Weekly meetings with faculty member to discuss research and develop outline, argument, and structure of thesis. **198C.** Writing and Revision. Requisite: course 198B. Writing, revision, and completion of departmental honors thesis in Spring Quarter to specification and satisfaction of thesis committee. Public presentation and defense of thesis required.

199. Directed Research or Senior Project in Chicana and Chicano Studies. (2 to 4) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance

and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Learner-Centered Teaching in Chicana/Chicano Studies. (4) Seminar, four hours. Designed for graduate students and required of all new department teaching apprentices. Interactive forum for discussing learner-centered teaching in Chicana/Chicano studies. Exploration of diverse classroom strategies and pedagogical techniques specific to interdisciplinary field. Topics include preparing for discussion sections, promoting discussion among students, using class websites, office hours, grading, and campus resources. May be repeated once for credit. S/U grading.

CIVIC ENGAGEMENT

*Interdisciplinary Minor
College of Letters and Science*

UCLA
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Kathy O'Byrne, Ph.D., *Chair*

Faculty Administrative Committee

Joel D. Aberbach, Ph.D. (*Political Science*)
Jan de Leeuw, Ph.D. (*Statistics*)
Jennifer A. Jay, Ph.D. (*Civil and Environmental Engineering*)
Reynaldo F. Macias, Ph.D. (*Chicana and Chicano Studies*)
Kathy O'Byrne, Ph.D. (*Center for Community Learning*)
Meredith Phillips, Ph.D. (*Public Policy*)
Olga T. Yokoyama, Ph.D. (*Applied Linguistics*)
Min Zhou, Ph.D. (*Sociology*)

Scope and Objectives

The Civic Engagement minor is designed to provide students with a core analytical, experiential, and theoretical framework for understanding issues of community building, governance, and the use of civic resources. It examines the connections between individual success and societal structures, while exploring traditions of service and the history of civic movements. The minor can be paired with any major as an applied and active way of putting disciplinary tools to use and is intended for highly motivated students of any ideological perspective who are committed to education among a broader community of learners.

Students complete a core curriculum, elective courses, an internship, and a capstone project involving research on a public policy issue. Three internship programs are available: local Los Angeles area internships, state internships through the University of California Center in Sacramento (UCCS) program, and national internships through the Center for American Politics and Public Policy (CAPPP) program in Washington, DC.

Undergraduate Study

Civic Engagement Minor

The Civic Engagement minor integrates local, state, and national internships with an academic context that enriches the valuable learning gained through meaningful work.

To enter the minor, students must (1) have an overall grade-point average of 2.7 or better, (2) submit an application and an essay, and (3) submit a letter of recommendation from a faculty member. To help plan the internship and course schedule, students are expected to select faculty sponsors with relevant expertise in the academic or service area in which they intend to concentrate. Applications are available in A265 Murphy Hall.

Students who complete the minor with a grade-point average of at least 3.5 in their minor coursework, an overall GPA of 3.5, and Civic Engagement 198 for their capstone experience qualify for graduation with College Honors.

Required Lower Division Course (4 or 5 units): One course, with a grade of C or better, from English 4WS, General Education Clusters M24CW with a service learning component approved by petition (if selected, General Education Clusters M24A and M24B must also be taken), General Education Clusters 80B (if selected, General Education Clusters 80A and 80CW must also be taken), History 2B, Political Science 10 (may not be selected by Political Science majors or minors), Public Policy 10A, or Sociology 1.

Students who enroll in a lower division course without a service learning component are required to (1) present evidence of regular participation in a substantive service project or (2) select a service learning course as their upper division elective.

Required Upper Division Courses (9 or 10 units): Civic Engagement M115 with a grade of B or better and one elective course selected from American Indian Studies C122SL, Asian American Studies M108, Chicana and Chicano Studies 100SL, M122, Civic Engagement 105SL, 133SL, 163SL, Economics M135, M136, 137, Philosophy 150, C156, 157A, 157B, Political Science M105, M106, Psychology 129C, 175, Sociology 143, 158, Spanish M165SL, Statistics 140SL, 141SL, Urban Planning M122, M171, or World Arts and Cultures 177SL.

The capstone experience for the minor requires an integrative final paper or project that incorporates the required curriculum and elective courses. Students complete the capstone experience under the guidance of a specific faculty sponsor and enroll in either Civic Engagement 198 or 199 in the final term of the minor. The faculty sponsor approves the proposed readings as well as the length and scope of the final paper or project based on guidelines developed by the Faculty Administrative Committee for the minor.

Required Upper Division Internship, Seminar, and Capstone Courses (18 units): Students

must select from either local, state, or national internship locations as follows:

Local Los Angeles area internships span three consecutive terms at the same internship location. Students enroll in three consecutive terms of a 195 internship course. Placements are selected in consultation with the Center for Community Learning minor coordinator and are based on both student interest and faculty recommendations. During one of the three terms, students must complete Civic Engagement M194 with a grade of B or better and a capstone experience through course 198 or 199.

State internships span one term through participation in the University of California Center Sacramento (UCCS) program during Winter, Spring, or Summer Quarter. Students enroll in Civic Engagement 194SA and 195SA. They must also complete Civic Engagement M194 with a grade of B or better and a capstone experience through course 198 or 199 at UCLA. Applications are available in A265 Murphy Hall.

National internships span one term through acceptance into the Center for American Politics and Public Policy (CAPPP) program in Washington, DC. In the Fall or Spring Quarter program, students enroll in History/Political Science/Sociology M191DC and M195DC; in the Winter Quarter program, students enroll in History/Political Science/Sociology M194DC and M195DC plus one 4-unit elective course. They must also complete Civic Engagement M194 with a grade of B or better and a capstone experience through course 198 or 199 at UCLA. Applications are available at <http://www.cappp.ucla.edu>.

No more than one upper division course may be applied toward both this minor and a major or minor in another department or program. Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 3.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Civic Engagement

Lower Division Course

10. Introduction to Engaged Scholarship. (2) Lecture, one hour; discussion, two hours; service learning research projects, two hours. Limited to first-year students in College Summer Institute. Introduction to campus resources by organizing meaningful research with faculty members and staff to expose students to history and philosophy of university/community partnerships in general, as well as specific opportunities for active engagement by undergraduate students at UCLA. General overview of civic engagement to provide students with summary of future opportunities for coursework with off-campus partners and list of faculty researchers who work in one of six specific topical areas. Offered in summer only. P/NP grading.

18. Bruin Leaders: Model for Social Change. (1) Lecture, two hours; fieldwork, one hour. Introduction to leadership development and civic engagement through community service. Based on nonhierarchical mode of leadership developed by UCLA Graduate School of Education and Information Studies. Topics include diversity issues, organizational skills and team-building development, and personal growth and community service goals. Participation in first-week

orientation session required. Consult *Schedule of Classes* for topics to be offered in specific term. May not be repeated for credit. P/NP grading.

95. Introduction to Community-Based Internships. (2) Tutorial, one hour; fieldwork, six hours. Introduction to community-based work for freshman/sophomore students who have not completed 90 units. Platform for preplanned, organized, structured, and supervised off-campus experiences with academic context. Acceptable placements include corporate, nonprofit, and governmental organizations that meet criteria for undergraduate internships as established by Center for Community Learning. P/NP grading.

Upper Division Courses

105SL. Client-Based Program Evaluation. (5) Seminar, three hours; fieldwork, three hours. Limited to juniors/seniors. Service learning course for undergraduate students and community partners through which students learn theory and practice of program evaluation. Evaluation of public health program in Los Angeles by research teams. Letter grading.

M115. Citizenship and Public Service. (4) (Same as Political Science M115C.) Lecture, three or four hours; discussion, one hour (when scheduled). Recommended prerequisite: Political Science 10. Designed for juniors/seniors. Study of ways in which political thinkers have conceived of ideas of citizenship and public service, how these ideas have changed over time, and frameworks for thinking about citizenship in era of markets and globalization. P/NP or letter grading.

133SL. Community-Based Research: Theory and Practice. (5) Seminar, three hours; fieldwork, three hours. Limited to juniors/seniors. Service learning course in research methods. Community-based research, in collaboration with community organizations, on theme of client rights: activism and advocacy. Offered in summer only. Letter grading.

163SL. Civic Engagement and Public Use of Knowledge. (5) Seminar, three hours; fieldwork, three hours. Limited to juniors/seniors. Review and analysis of research literature and national discussion of role of citizens in modern-day democracy, including discussion of civic education in higher education and implications for lives of students. Letter grading.

180. Access to Justice: Hope and Reality. (4) Seminar, three hours. Limited to UCLA students who are members of JusticeCorps program through AmeriCorps. JusticeCorps was established as innovative approach to solving one pressing issue faced by courts around country today: providing equal access to justice. Examination of promise of justice system in America to provide meaningful access to courts for all who seek it. What premises underlie structure of U.S. legal system? Exploration of sociopolitical context for current legal system, including origins and current status of legal services and self-help movements, including role of JusticeCorps. Were these strategies designed to make promise of equal justice a reality or have they inadvertently, or intentionally, resulted in two-tiered legal system—one for those with means and another for those without? P/NP or letter grading.

M194. Capstone Research Seminar. (2) (Formerly numbered 194.) (Same as Disability Studies M194.) Seminar, two hours. Enforced prerequisite: course 195. Required of students pursuing Civic Engagement minor. Integration of off-campus work with academic theories and concepts within field of civic engagement. Students report on their internship experiences and analyze relationship between their internship and issues of policy, ethics, systemic responses to community needs, or personal and intellectual transformations. Students identify one faculty mentor and develop proposal for required capstone research project. Letter grading.

195. Community or Corporate Internships in Civic Engagement. (4) Tutorial, one hour; fieldwork, eight hours. Limited to juniors/seniors in Civic Engagement minor. Internship in supervised setting in corporate, governmental, or nonprofit setting, using knowledge base of civic engagement. Students submit weekly

writing assignments and final paper that examine civic issues related to meaningful work at internship site. Students expected to learn ways in which individuals and groups can organize to solve problems, analyze issues, or bring about change in democratic society. Must be repeated for three consecutive terms to fulfill minor requirements. Individual contract with supervising faculty member required. Letter grading.

198. Honors Research in Civic Engagement. (4) Tutorial, one hour. Enforced prerequisite: course 194. Limited to seniors in Civic Engagement minor. Required capstone course to minor for students pursuing College Honors. Development and completion of honors thesis or comprehensive research project under direct supervision of faculty member. Individual contract required. Letter grading.

199. Directed Research or Senior Project in Civic Engagement. (4) Tutorial, one hour. Enforced prerequisite: course 194. Limited to seniors in Civic Engagement minor. Required capstone course to minor. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. Individual contract required. Letter grading.

CIVIL AND ENVIRONMENTAL ENGINEERING

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Scope and Objectives

The civil and environmental engineering programs at UCLA include structural engineering, structural mechanics, geotechnical engineering, earthquake engineering, hydrology and water resources engineering, and environmental engineering.

The ABET-accredited civil engineering curriculum leads to a B.S. in Civil Engineering, a broad-based education in structural engineering, geotechnical engineering, hydrology and water resources engineering, and environmental engineering. This program is an excellent foundation for entry into professional practice in civil engineering or for more advanced study. The department also offers the undergraduate Environmental Engineering minor.

At the graduate level, M.S. and Ph.D. degree programs are offered in the areas of structures (including structural/earthquake engineering and structural mechanics), geotechnical engineering, hydrology and water resources engineering, and environmental engineering. In these areas, research is being done on a variety of problems ranging from basic physics and mechanics problems to critical problems in earthquake engineering and in the development of new technologies for pollution control and water distribution and treatment.

Undergraduate Study

The Civil Engineering major is a designated capstone major. In each of the major field design courses, students work individually and in groups to complete design projects. To do so, they draw on their prior coursework, research the needed materials and possible approaches to creating their device or system, and come up with creative solutions. This process enables them to integrate many of the principles they have learned previously and apply them to real systems. In completing their projects, students are also expected to demonstrate effective oral and written communication skills, as well as their ability to work productively with others as part of a team.

Civil Engineering B.S.

Capstone Major

Preparation for the Major

Required: Chemistry and Biochemistry 20A, 20B, 20L; Civil and Environmental Engineering 1, 15; Computer Science 31 (or another programming course approved by the Faculty Executive Committee); Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 1C (or Electrical Engineering 1), 4AL.

The Major

Required: Chemical Engineering 102A or Mechanical and Aerospace Engineering 105A, Civil and Environmental Engineering 101, 103, 108, 110, 120, 135A, 151, 153, Materials Science and Engineering 104, Mechanical and Aerospace Engineering 103, 182A; three technical breadth courses (12 units) selected from an approved list available in the Office of Academic and Student Affairs; and at least nine major field elective courses (36 units) that must include the required courses in two of the following tracks and at least two laboratory courses, one of which must be from one of the two selected tracks and the other from any separate track.

Environmental Engineering: Required: One capstone design course from Civil and Environmental Engineering 157B or 157C; recommended courses: 154, 155, 163, 164, M166; laboratory courses: 156A, 156B, 157C

Geotechnical Engineering: Required: One capstone design course (Civil and Environmental Engineering 121); recommended courses: 123, 125, Earth and Space Sciences 139; laboratory courses: 128L, 129

Structural Engineering and Mechanics: Required: Civil and Environmental Engineering 135B, one lecture course from 130, M135C, 137, 141, or 142, and one capstone design course from 135L, 142L, 144, or 147; recommended courses: 121, 125, 130, 137, 141, 142, 143, 144, 147; laboratory courses: 130L, 135L, 137L, 142L

Water Resources Engineering: Required: Civil and Environmental Engineering 150 and one capstone design course (157L); recommended courses: 154, 156A, 157A; laboratory courses: 157L, 157M

Additional Elective Options: Civil and Environmental Engineering 105, 106A, 180, 181, Earth and Space Sciences 100, Mechanical and Aerospace Engineering 166C, M168

For information on University and general education requirements, see the College and Schools section earlier in this catalog.

Environmental Engineering Minor

The Environmental Engineering minor is designed for students who wish to augment their major program of study with courses addressing issues central to the application of environmental engineering to important environmental problems facing modern society in developed and developing countries. The minor provides students with a greater depth of experience and understanding of the role that environmental engineering can play in dealing with environmental issues.

To enter the minor, students must be in good academic standing (2.0 grade-point average or better) and file a petition in the Office of Academic and Student Affairs, 6426 Boelter Hall.

Required Lower Division Course (5 units): Mathematics 3C or 32A.

Required Upper Division Courses (24 units minimum): Civil and Environmental Engineering 153 and five courses from 151, 154, 155, 156A, M166, Chemical Engineering C118, Environmental Health Sciences C125, C164.

No more than two upper division courses may be applied toward both this minor and a major or minor in another department or program, and at least 16 units applied toward the minor must be taken in residence at UCLA. Transfer credit for any of the above is subject to departmental approval; consult the undergraduate counselors before enrolling in any courses for the minor.

Each minor course must be taken for a letter grade, and students must have a minimum grade of C (2.0) in each and an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Civil and Environmental Engineering offers Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Civil Engineering.

Civil and Environmental Engineering

Lower Division Courses

1. Introduction to Civil Engineering. (2) Lecture, two hours; outside study, four hours. Introduction to scope of civil engineering profession, including earthquake, environmental, geotechnical, structural, transportation, and water resources engineering. P/NP grading.

15. Introduction to Computing for Civil Engineers. (2) Lecture, two hours; laboratory, two hours; outside study, two hours. Introduction to computer programming using MATLAB. Selected topics in programming, with emphasis on numerical techniques and methodology as applied to civil engineering programs. Letter grading.

58SL. Wetlands and Water Quality Service Learning Course. (4) Lecture, three hours; outside study, nine hours. Learning and teaching of basic water quality concepts and wetland functions in one of two middle school classrooms in Los Angeles. Topics include photosynthesis, respiration, basic water quality parameters (pH, dissolved oxygen, salinity, turbidity), basic contaminant chemistry and metal precipitation, and role of wetlands in microbial water quality. Field trip with middle school students to Ballona Wetlands. Letter grading.

85. Professional Practice Issues in Structural Engineering. (2) Seminar, two hours; outside study, four hours. Introduction to issues of professional practice in structural engineering. Content and organization of

model building codes and material-specific reference standards. Interpretation of architectural and structural design drawings and specifications. Material-independent structural calculations such as tributary area, multistory column loads, and estimation of simple seismic and wind loads. P/NP grading.

97. Variable Topics in Civil and Environmental Engineering. (2 to 4) Seminar, two hours. Current topics and research methods in civil and environmental engineering. May be repeated for credit. Letter grading.

Upper Division Courses

101. Statics and Dynamics. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: Mathematics 31A, 31B, Physics 1A. Newtonian mechanics, vector representation, and resultant forces and moments. Free-body diagrams and equilibrium, internal loads and equilibrium in trusses, frames, and beams. Planar and nonplanar systems, distributed forces, determinate and indeterminate force systems, shear and moment diagrams, and axial force diagram. Kinematics and kinetics of particles. Linear and angular momentum and impulse. Multiparticle systems. Kinematics and kinetics of rigid bodies in two- and three-dimensional motions. Letter grading.

103. Applied Numerical Computing and Modeling in Civil and Environmental Engineering. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: course 15, Mathematics 33B (may be taken concurrently). Introduction to numerical computing with specific applications in civil and environmental engineering. Topics include error and computer arithmetic, root finding, curve fitting, numerical integration and differentiation, solution of systems of linear and nonlinear equations, numerical solution of ordinary and partial differential equations. Letter grading.

105. Technical Communication. (4) Lecture, four hours; outside study, eight hours. Techniques for effectively communicating technical material accurately, clearly, and briefly, with emphasis on writing and development of oral presentation skills. How to write clearly and concisely, organize material logically, present it in readable style, edit work accurately, and apply sound writing principles to technical documents. Topics include organization of information; application of techniques to achieve unity, coherence, and development; use of parallel grammatical structure effectively; avoidance of common writing errors; and preparation and delivery of oral presentations. Letter grading.

106A. Problem Solving in Engineering Economy. (4) Lecture, four hours; outside study, eight hours. Designed for juniors/seniors. Problem-solving and decision-making framework for economic analysis of engineering projects. Foundation for understanding corporate financial practices and accounting. Decisions on capital investments and choice of alternatives for engineering applications in all fields. Introduction to use of engineering economics in analysis of inflation and public investments. Letter grading.

108. Introduction to Mechanics of Deformable Solids. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: Mathematics 33A, Physics 1A. Corequisite: course 101. Review of equilibrium principles; forces and moments transmitted by slender members. Concepts of stress and strain. Stress-strain relations with focus on linear elasticity. Transformation of stress and strain. Deformations and stresses caused by tension, compression, bending, shear, and torsion of slender members. Structural applications to trusses, beams, shafts, and columns. Introduction to virtual work principle. Letter grading.

110. Introduction to Probability and Statistics for Engineers. (4) Lecture, four hours; outside study, eight hours. Requisites: Mathematics 32A, 33A. Recommended: course 15. Introduction to fundamental concepts and applications of probability and statistics in civil engineering, with focus on how these concepts are used in experimental design and sampling, data analysis, risk and reliability analysis, and project design under uncertainty. Topics include basic probability concepts, random variables and analytical probability distributions, functions of random variables, esti-

mating parameters from observational data, regression, hypothesis testing, and Bayesian concepts. Letter grading.

120. Principles of Soil Mechanics. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 108. Soil as foundation for structures and as material of construction. Soil formation, classification, physical and mechanical properties, soil compaction, earth pressures, consolidation, and shear strength. Letter grading.

121. Design of Foundations and Earth Structures. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 120. Design methods for foundations and earth structures. Site investigation, including evaluation of soil properties for design. Design of footings and piles, including stability and settlement calculations. Design of slopes and earth retaining structures. Letter grading.

123. Advanced Geotechnical Design. (4) Lecture, four hours; computer laboratory, two hours; outside study, six hours. Requisite: course 121. Analysis and design of earth dams, including seepage, piping, and slope stability analyses. Case history studies involving landslides, settlement, and expansive soil problems, and design of repair methodologies for those problems. Within context of above technical problems, emphasis on preparation of professional engineering documents such as proposals, work acknowledgements, figures, plans, and reports. Letter grading.

125. Fundamentals of Earthquake Engineering. (4) Lecture, four hours; outside study, eight hours. Requisite: course 135A. Overview of engineering seismology, including plate tectonics, faults, wave propagation, and earthquake strong ground motion. Development and selection of design ground motions using both probabilistic seismic hazard analysis and code-based methods. Overview of seismic design regulation and California PE examination's seismic component. Code-based seismic design for new buildings using California Building Code (International Building Code 2006). Overview of seismic design of bridges, dams, and other non-building structures. Letter grading.

128L. Soil Mechanics Laboratory. (4) Lecture, one hour; laboratory, eight hours; outside study, three hours. Requisite or corequisite: course 120. Laboratory experiments to be performed by students to obtain soil parameters required for assigned design problems. Soil classification, grain size distribution, Atterberg limits, specific gravity, compaction, expansion index, consolidation, shear strength determination. Design problems, laboratory report writing. Letter grading.

129. Engineering Geomatics. (2) Lecture, two hours; fieldwork, four hours. Collection, processing, and analysis of geospatial data. Geodetic models for shape of Earth. Elements and usage of topographic data and maps. Basic and advanced global positioning systems (GPS) mapping. Advanced laser-based laser-light detection and ranging (LIDAR) mapping. Quantitative terrain analysis. Hydrogeomatics: seafloor mapping. Letter grading.

130. Elementary Structural Mechanics. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 108. Analysis of stress and strain, phenomenological material behavior, extension, bending, and transverse shear stresses in beams with general cross-sections, shear center, deflection of beams, torsion of beams, warping, column instability and failure. Letter grading.

130L. Experimental Structural Mechanics. (4) Lecture, two hours; laboratory, six hours; outside study, four hours. Requisite or corequisite: course 130. Lectures and laboratory experiments in various structural mechanics testing of metals, plastics, and concrete. Direct tension. Direct compression. Ultrasonic non-destructive evaluation. Elastic buckling of columns. Fracture mechanics testing and fracture toughness. Splitting and flexural tension. Elastic, plastic, and fracture behavior. ASTM, RILEM, and USBR. Cyclic loading. Microstructures of concrete. Size effects. Letter grading.

135A. Elementary Structural Analysis. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 15, 103, 108. Introduction to structural analysis; classification of structural elements; analysis of statically determinate trusses, beams, and frames; deflections in elementary structures; virtual work; analysis of indeterminate structures using force method; introduction to displacement method and energy concepts. Letter grading.

135B. Intermediate Structural Analysis. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 135A. Analysis of truss and frame structures using matrix methods; matrix force methods; matrix displacement method; analysis concepts based on theorem of virtual work; moment distribution. Letter grading.

M135C. Introduction to Finite Element Methods. (4) (Formerly numbered 135C.) (Same as Mechanical and Aerospace Engineering M168.) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 130 or Mechanical and Aerospace Engineering 156A or 166A. Introduction to basic concepts of finite element methods (FEM) and applications to structural and solid mechanics and heat transfer. Direct matrix structural analysis; weighted residual, least squares, and Ritz approximation methods; shape functions; convergence properties; isoparametric formulation of multidimensional heat flow and elasticity; numerical integration. Practical use of FEM software; geometric and analytical modeling; preprocessing and postprocessing techniques; term projects with computers. Letter grading.

135L. Structural Design and Testing Laboratory. (4) Lecture, two hours; laboratory, four hours; outside study, six hours. Requisites: courses 15, 135A. Limited enrollment. Computer-aided optimum design, construction, instrumentation, and test of small-scale model structure. Use of computer-based data acquisition and interpretation systems for comparison of experimental and theoretically predicted behavior. Letter grading.

137. Elementary Structural Dynamics. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 135B. Basic structural dynamics course for civil engineering students. Elastic free, forced vibration, and earthquake response spectra analysis for single and multidegree of freedom systems. Axial, bending, and torsional vibration of beams. Letter grading.

137L. Structural Dynamics Laboratory. (4) Lecture, two hours; laboratory, six hours; outside study, four hours. Requisite or corequisite: course 137. Calibration of instrumentation for dynamic measurements. Determination of natural frequencies and damping factors from free vibrations. Determination of natural frequencies, mode shapes, and damping factors from forced vibrations. Dynamic similitude. Letter grading.

141. Steel Structures. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 135A. Introduction to building codes. Fundamentals of load and resistance factor design of steel elements. Design of tension and compression members. Design of beams and beam columns. Simple connection design. Introduction to computer modeling methods and design process. Letter grading.

142. Design of Reinforced Concrete Structures. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 135A. Beams, columns, and slabs in reinforced concrete structures. Properties of reinforced concrete materials. Design of beams and slabs for flexure, shear, anchorage of reinforcement, and deflection. Design of columns for axial force, bending, and shear. Ultimate strength design methods. Letter grading.

142L. Reinforced Concrete Structural Laboratory. (4) Lecture, two hours; laboratory, six hours; outside study, four hours. Requisites: courses 135B, 142. Limited enrollment. Design considerations used for reinforced concrete beams, columns, slabs, and joints evaluated using analysis and experiments. Links between theory, building codes, and experimental results. Students demonstrate accuracies and limita-

tions of calculation procedures used in design of reinforced concrete structures. Development of skills for written and oral presentations. Letter grading.

143. Design of Prestressed Concrete Structures. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 135A, 142. Prestressing and post-tensioning techniques. Properties of concrete and prestressing steels. Design considerations: anchorage/bonding of cables/wire, flexure analysis by superposition and strength methods, draping of cables, deflection and stiffness, indeterminate structures, limitation of prestressing. Letter grading.

144. Structural Systems Design. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 137, 141, 142. Design course for civil engineering students, with focus on design and performance of complete building structural systems. Uniform Building Code dead, live, wind, and earthquake loads. Design of concrete masonry building. Computer analysis of performance of designed building. Letter grading.

147. Design and Construction of Tall Buildings. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 135B, 141. Role of structural engineer, architect, and other design professions in design process. Development of architectural design of tall buildings. Influence of building code, zoning, and finance. Advantages and limitations of different structural systems. Development of structural system design and computer model for architectural design. Letter grading.

150. Introduction to Hydrology. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: Mechanical and Aerospace Engineering 103. Recommended: course 15. Study of hydrologic cycle and relevant atmospheric processes, water and energy balance, radiation, precipitation formation, infiltration, evaporation, vegetation transpiration, groundwater flow, storm runoff, and flood processes. Letter grading.

151. Introduction to Water Resources Engineering. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Recommended prerequisite: Mechanical and Aerospace Engineering 103. Principles of hydraulics, flow of water in open channels and pressure conduits, reservoirs and dams, hydraulic machinery, hydroelectric power. Introduction to system analysis and design applied to water resources engineering. Letter grading.

153. Introduction to Environmental Engineering Science. (4) Lecture, four hours; outside study, eight hours. Recommended prerequisite: Mechanical and Aerospace Engineering 103. Water, air, and soil pollution: sources, transformations, effects, and processes for removal of contaminants. Water quality, water and wastewater treatment, waste disposal, air pollution, global environmental problems. Field trip. Letter grading.

154. Chemical Fate and Transport in Aquatic Environments. (4) Lecture, four hours; outside study, eight hours. Recommended prerequisite: course 153. Fundamental physical, chemical, and biological principles governing movement and fate of chemicals in surface waters and groundwater. Topics include physical transport in various aquatic environments, air-water exchange, acid-base equilibria, oxidation-reduction chemistry, chemical sorption, biodegradation, and bioaccumulation. Practical quantitative problems solved considering both reaction and transport of chemicals in environment. Letter grading.

155. Unit Operations and Processes for Water and Wastewater Treatment. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 153. Biological, chemical, and physical methods used to modify water quality. Fundamentals of phenomena governing design of engineered systems for water and wastewater treatment systems. Field trip. Letter grading.

156A. Environmental Chemistry Laboratory. (4) Lecture, four hours; laboratory, four hours; outside study, four hours. Requisites: course 153 (may be taken concurrently), Chemistry 20A, 20B. Basic laboratory techniques in analytical chemistry related to water and wastewater analysis. Selected experiments include gravimetric analysis, titrimetry spectrophotometry.

try, redox systems, pH and electrical conductivity. Concepts to be applied to analysis of "real" water samples in course 156B. Letter grading.

156B. Environmental Engineering Unit Operations and Processes Laboratory. (4) Laboratory, six hours; discussion, two hours; outside study, four hours. Requisites: Chemistry 20A, 20B. Characterization and analysis of typical natural waters and wastewaters for inorganic and organic constituents. Selected experiments include analysis of solids, nitrogen species, oxygen demand, and chlorine residual, that are used in unit operation experiments that include reactor dynamics, aeration, gas stripping, coagulation/flocculation, and membrane separation. Letter grading.

157A. Hydrologic Modeling. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 103, 150, 151. Introduction to hydrologic modeling. Topics selected from areas of (1) open-channel flow, including one-dimensional steady flow, unsteady flow, and sediment transport, (2) pipe flow and water distribution systems, (3) rainfall-runoff modeling, and (4) groundwater flow modeling, with focus on use of industry and/or research standard models with locally relevant applications. Letter grading.

157B. Design of Water Treatment Plants. (4) Lecture, two hours; discussion, two hours; laboratory, four hours; outside study, four hours. Requisite: course 155. Water quality standards and regulations, overview of water treatment plants, design of unit operations, predesign of water treatment plants, hydraulics of plants, process control, and cost estimation. Letter grading.

157C. Design of Wastewater Treatment Plants. (4) Lecture, four hours; outside study, eight hours. Requisite: course 155. Process design of wastewater treatment plants, including primary and secondary treatment, detailed design review of existing plants, process control, and economics. Letter grading.

157L. Hydrologic Analysis and Design. (4) Lecture, two hours; laboratory, four hours; outside study, six hours. Requisites: courses 150 and/or 151. Collection, compilation, and interpretation of data for quantification of surface water components of hydrologic cycle, including precipitation, evaporation, infiltration, and runoff. Use of hydrologic variables and parameters for development, construction, and application of analytical models for selected problems in hydrology and water resources. Field trip required. Letter grading.

157M. Hydrology of Mountain Watersheds. (4) Lecture, one hour; fieldwork, four hours; laboratory, three hours; outside study, four hours; one field trip. Requisite: course 150 or 157L. Advanced field- and laboratory-based course with focus on study of hydrologic and geochemical processes in snow-dominated and mountainous regions. Students measure and quantify snowpack properties, snowmelt, discharge, evaporation, infiltration, soil properties, and local meteorology, as well as investigate geochemical properties of surface and groundwater systems. Exploration of rating curves, stream classification, and flooding potential. Extended field trip required. Letter grading.

163. Introduction to Atmospheric Chemistry and Air Pollution. (4) Lecture, four hours; outside study, eight hours. Requisites: course 153, Chemistry 20A, 20B, Mathematics 31A, 31B, Physics 1A, 1B. Description of processes affecting chemical composition of troposphere: air pollutant concentrations/standards, urban and regional ozone, aerosol pollution, formation/deposition of acid precipitation, fate of anthropogenic/toxic/natural organic and inorganic compounds, selected global chemical cycle(s). Control technologies. Letter grading.

164. Hazardous Waste Site Investigation and Remediation. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 150, 153, Mechanical and Aerospace Engineering 103. Overview of hazardous waste types and potential sources. Techniques in measuring and modeling subsurface flow and contaminant transport in subsurface. Design project illustrating remedial investigation and feasibility study. Letter grading.

M166. Environmental Microbiology. (4) (Same as Environmental Health Sciences M166.) Lecture, four hours; discussion, two hours; outside study, six hours. Recommended requisite: course 153. Microbial cell and its metabolic capabilities, microbial genetics and its potentials, growth of microbes and kinetics of growth, microbial ecology and diversity, microbiology of wastewater treatment, probing of microbes, public health microbiology, pathogen control. Letter grading.

M166L. Environmental Microbiology and Biotechnology Laboratory. (1) (Same as Environmental Health Sciences M166L.) Laboratory, two hours; outside study, two hours. Corequisite: course M166. General laboratory practice within environmental microbiology, sampling of environmental samples, classical and modern molecular techniques for enumeration of microbes from environmental samples, techniques for determination of microbial activity in environmental samples, laboratory setups for studying environmental biotechnology. Letter grading.

180. Introduction to Transportation Engineering. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Designed for juniors/seniors. General characteristics of transportation systems, including streets and highways, rail, transit, air, and water. Capacity considerations including time-space diagrams and queueing. Components of transportation system design, including horizontal and vertical alignment, cross sections, earthwork, drainage, and pavements. Letter grading.

181. Traffic Engineering Systems: Operations and Control. (4) Lecture, four hours; fieldwork/laboratory, two hours; outside study, six hours. Designed for juniors/seniors. Applications of traffic flow theories; data collection and analyses; intersection capacity analyses; simulation models; traffic signal design; signal timing design, implementation, and performance evaluation; Intelligent Transportation Systems concept, architecture, and integration. Letter grading.

188. Special Courses in Civil and Environmental Engineering. (2 to 6) Lecture, to be arranged; outside study, to be arranged. Special topics in civil engineering for undergraduate students taught on experimental or temporary basis, such as those taught by resident and visiting faculty members. May be repeated once for credit with topic or instructor change. Letter grading.

194. Research Group Seminars: Civil and Environmental Engineering. (2 to 8) Seminar, two to eight hours; outside study, four to 16 hours. Designed for undergraduate students who are part of research group. Discussion of research methods and current literature in field or of research of faculty members or students. May be repeated for credit. Letter grading.

199. Directed Research in Civil and Environmental Engineering. (2 to 8) Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit with school approval. Individual contract required; enrollment petitions available in Office of Academic and Student Affairs. Letter grading.

Graduate Courses

220. Advanced Soil Mechanics. (4) Lecture, four hours; outside study, eight hours. Requisite: course 120. State of stress. Consolidation and settlement analysis. Shear strength of granular and cohesive soils. In situ and laboratory methods for soil property evaluation. Letter grading.

221. Advanced Foundation Engineering. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 121, 220. Stress distribution. Bearing capacity and settlement of shallow foundations, including spread footings and mats. Performance of driven pile and drilled shaft foundations under vertical and lateral loading. Construction considerations. Letter grading.

222. Introduction to Soil Dynamics. (4) Lecture, four hours; outside study, eight hours. Requisite: course 120. Review of engineering problems involving soil dynamics. Fundamentals of theoretical soil dy-

namics: response of sliding block-on-plane to cyclic earthquake loads, application of theories of single degree-of-freedom (DOF) system, multiple DOF system and one-dimensional wave propagation. Fundamentals of cyclic soil behavior: stress-strain-pore water pressure behavior, shear moduli and damping, cyclic settlement and concept of volumetric cyclic threshold shear strain. Introduction to modeling of cyclic soil behavior. Letter grading.

223. Slope Stability and Earth Retention Systems. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 120, 121, 220. Basic concepts of stability of earth slopes, including shear strength, design charts, limit equilibrium analysis, seepage analysis, staged construction, and rapid drawdown. Theory of earth pressures behind retaining structures, with special application to design of retaining walls, sheet piles, mechanically stabilized earth, soil nails, and anchored and braced excavation. Letter grading.

224. Advanced Cyclic and Monotonic Soil Behavior. (4) Lecture, four hours; outside study, eight hours. Requisite: course 120. In-depth study of soil behavior under cyclic and monotonic loads. Relationships between stress, strain, pore water pressure, and volume change in range of very small and large strains. Concept of normalized static and cyclic soil behavior. Cyclic degradation and liquefaction of saturated soils. Cyclic settlement of partially saturated and dry soils. Concept of volumetric cyclic threshold shear strain. Factors affecting shear moduli and damping during cyclic loading. Postcyclic behavior under monotonic loads. Critical review of laboratory, field, and modeling testing techniques. Letter grading.

225. Geotechnical Earthquake Engineering. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 125 (may be taken concurrently), 222. Analysis of earthquake-induced ground failure, including soil liquefaction, cyclic softening of clays, seismic compression, surface fault rupture, and seismic slope stability. Ground response effects on earthquake ground motions. Soil-structure interaction, including inertial and kinematic interaction and foundation deformations under seismic loading. Letter grading.

226. Geoenvironmental Engineering. (4) Lecture, four hours; outside study, eight hours. Requisite: course 120. Field of geoenvironmental engineering involves application of geotechnical principles to environmental problems. Topics include environmental regulations, waste characterization, geosynthetics, solid waste landfills, subsurface barrier walls, and disposal of high water content materials. Letter grading.

227. Numerical Methods in Geotechnical Engineering. (4) Lecture, four hours; outside study, eight hours. Requisite: course 220. Introduction to basic concepts of computer modeling of soils using finite element method, and to constitutive modeling based on elasticity and plasticity theories. Special emphasis on numerical applications and identification of modeling concerns such as instability, bifurcation, nonexistence, and nonuniqueness of solutions. Letter grading.

228L. Advanced Soil Mechanics Laboratory. (4) Lecture, one hour; laboratory, six hours; outside study, five hours. Requisites: courses 120, 121. Lectures and laboratory studies covering more advanced aspects of laboratory determination of soil properties and their application to design. Tests to determine permeability, consolidation, and shear strength. Review of advanced instrumentation and measurement techniques. Letter grading.

M230A. Linear Elasticity. (4) (Same as Mechanical and Aerospace Engineering M256A.) Lecture, four hours; outside study, eight hours. Requisite: Mechanical and Aerospace Engineering 156A or 166A. Linear elastostatics. Cartesian tensors; infinitesimal strain tensor; Cauchy stress tensor; strain energy; equilibrium equations; linear constitutive relations; plane elastostatic problems, holes, corners, inclusions, cracks; three-dimensional problems of Kelvin, Boussinesq, and Cerruti. Introduction to boundary integral equation method. Letter grading.

M230B. Nonlinear Elasticity. (4) (Same as Mechanical and Aerospace Engineering M256B.) Lecture, four hours; outside study, eight hours. Requisite: course

M230A. Kinematics of deformation, material and spatial coordinates, deformation gradient tensor, nonlinear and linear strain tensors, strain displacement relations; balance laws, Cauchy and Piola stresses, Cauchy equations of motion, balance of energy, stored energy; constitutive relations, elasticity, hyperelasticity, thermoelasticity; linearization of field equations; solution of selected problems. Letter grading.

M230C. Plasticity. (4) (Formerly numbered M239.) (Same as Mechanical and Aerospace Engineering M256C.) Lecture, four hours; outside study, eight hours. Requisites: Mechanical and Aerospace Engineering M256A, M256B. Classical rate-independent plasticity theory, yield functions, flow rules and thermodynamics. Classical rate-dependent viscoplasticity, Perzyna and Duvant/Lions types of viscoplasticity. Thermoplasticity and creep. Return mapping algorithms for plasticity and viscoplasticity. Finite element implementations. Letter grading.

232. Theory of Plates and Shells. (4) Lecture, four hours; outside study, eight hours. Requisite: course 130. Small and large deformation theories of thin plates; energy methods; free vibrations; membrane theory of shells; axisymmetric deformations of cylindrical and spherical shells, including bending. Letter grading.

233. Mechanics of Composite Material Structures. (4) Lecture, four hours; outside study, eight hours. Requisites: courses M230B, 232. Elastic, anisotropic stress-strain-temperature relations. Analysis of prismatic beams by three-dimensional elasticity. Analysis of laminated anisotropic plates and shells based on classical and first-order shear deformation theories. Elastodynamic behavior of laminated plates and cylinders. Letter grading.

234. Advanced Topics in Structural Mechanics. (4) Lecture, four hours; outside study, eight hours. Limited to graduate engineering students. Current topics in composite materials, computational methods, finite element analysis, structural synthesis, nonlinear mechanics, and structural mechanics in general. Topics may vary from term to term. Letter grading.

235A. Advanced Structural Analysis. (4) Lecture, four hours; outside study, eight hours. Requisite: course 135A. Recommended: course 135B. Review of matrix force and displacement methods of structural analysis; virtual work theorem, virtual forces, and displacements; theorems on stationary value of total and complementary potential energy, minimum total potential energy, Maxwell/Betti theorems, effects of approximations, introduction to finite element analysis. Letter grading.

235B. Finite Element Analysis of Structures. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 130, 235A. Direct energy formulations for deformable systems; solution methods for linear equations; analysis of structural systems with one-dimensional elements; introduction to variational calculus; discrete element displacement, force, and mixed methods for membrane, plate, shell structures; instability effects. Letter grading.

235C. Nonlinear Structural Analysis. (4) Lecture, four hours; outside study, eight hours. Requisite: course 235B. Classification of nonlinear effects; material nonlinearities; conservative, nonconservative material behavior; geometric nonlinearities, Lagrangian, Eulerian description of motion; finite element methods in geometrically nonlinear problems; postbuckling behavior of structures; solution of nonlinear equations; incremental, iterative, programming methods. Letter grading.

236. Stability of Structures I. (4) Lecture, four hours; outside study, eight hours. Requisite: course 130 or 135B. Elastic buckling of bars. Different approaches to stability problems. Inelastic buckling of columns and beam columns. Columns and beam columns with linear, nonlinear creep. Combined torsional and flexural buckling of columns. Buckling of plates. Letter grading.

M237A. Dynamics of Structures. (4) (Same as Mechanical and Aerospace Engineering M269A.) Lecture, four hours; outside study, eight hours. Requisite: course 137. Principles of dynamics. Determination of

normal modes and frequencies by differential and integral equation solutions. Transient and steady state response. Emphasis on derivation and solution of governing equations using matrix formulation. Letter grading.

238. Computational Solid Mechanics. (4) Lecture, four hours; outside study, eight hours. Requisite: course 235B. Advanced finite element and meshfree methods for computational solid mechanics. Stability and consistency in temporal discretization of parabolic and hyperbolic systems. Analysis of numerical dissipation and dispersion. Multifield variational principles for constrained problems. Meshfree methods: approximation theories, Galerkin meshfree methods, collocation meshfree methods, imposition of boundary conditions, domain integration, stability. Letter grading.

241. Advanced Steel Structures. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 137, 141, 235A. Performance characterization of steel structures for static and earthquake loads. Behavior state analysis and building code provisions for special moment resisting, braced, and eccentric braced frames. Composite steel-concrete structures. Letter grading.

242. Advanced Reinforced Concrete Design. (4) Lecture, four hours; outside study, eight hours. Requisite: course 142. Design of building and other structural systems for vertical and lateral loads. Earthquake forces. Ductility in elements and systems. Columns: secondary effects and biaxial bending. Slabs: code and analysis methods. Footings, shear walls, diaphragms, chords, and collectors. Detailing for ductile behavior. Retrofitting. Letter grading.

243A. Behavior and Design of Reinforced Concrete Structural Elements. (4) Lecture, four hours; outside study, eight hours. Requisite: course 142. Advanced topics on design of reinforced concrete structures, including stress-strain relationships for plain and confined concrete, moment-curvature analysis of sections, and design for shear. Design of slender and low-rise walls, as well as design of beam-column joints. Introduction to displacement-based design and applications of strut-and-tie models. Letter grading.

243B. Response and Design of Reinforced Concrete Structural Systems. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 243A, 246. Information on response and behavior of reinforced concrete buildings to earthquake ground motions. Topics include use of elastic and inelastic response spectra, role of strength, stiffness, and ductility in design, use of prescriptive versus performance-based design methodologies, and application of elastic and inelastic analysis techniques for new and existing construction. Letter grading.

244. Structural Loads and Safety for Civil Structures. (4) Lecture, four hours; outside study, eight hours. Requisite: course 141 or 142 or 143 or 144. Modeling of uncertainties in structural loads and structural mechanics; structural safety analysis; and calculation of capacity reduction factors. Letter grading.

245. Earthquake Ground Motion Characterization. (4) Lecture, four hours; outside study, eight hours. Corequisite: course 137 or 246. Earthquake fundamentals, including plate tectonics, fault types, seismic waves, and magnitude scales. Characterization of earthquake source, including magnitude range and rate of future earthquakes. Ground motion prediction equations and site effects on ground motion. Seismic hazard analysis. Ground motion selection and modification for response history analysis. Letter grading.

246. Structural Response to Ground Motions. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 137, 141, 142, 235A. Spectral analysis of ground motions: response, time, and Fourier spectra. Response of structures to ground motions due to earthquakes. Computational methods to evaluate structural response. Response analysis, including evaluation of contemporary design standards. Limitations due to idealizations. Letter grading.

247. Earthquake Hazard Mitigation. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 130, and M237A or 246. Concept of seismic isolation, linear theory of base isolation, visco-elastic

and hysteretic behavior, elastomeric bearings under compression and bending, buckling of bearings, sliding bearings, passive energy dissipation devices, response of structures with isolation and passive energy dissipation devices, static and dynamic analysis procedures, code provisions and design methods for seismically isolated structures. Letter grading.

248. Probabilistic Structural Dynamics. (4) Lecture, four hours; outside study, eight hours. Requisites: course 244, Electrical Engineering 131A, Mechanical and Aerospace Engineering 174. Introduction to probability theory and random processes. Dynamic analysis of linear and nonlinear structural systems subjected to stationary and nonstationary random excitations. Reliability studies related to first excursion and fatigue failures. Applications in earthquake, offshore, wind, and aerospace engineering. Letter grading.

249. Selected Topics in Structural Engineering, Mechanics, and Geotechnical Engineering. (2) Lecture, two hours; outside study, six hours. Review of recent research and developments in structural engineering, structural mechanics, and geotechnical engineering. Structural analysis, finite elements, structural stability, dynamics of structures, structural design, earthquake engineering, ground motion, elasticity, plasticity, structural mechanics, mechanics of composites, constitutive modeling, geomechanics, and geotechnical engineering. May be repeated for credit. S/U grading.

250A. Surface Water Hydrology. (4) Lecture, four hours; outside study, eight hours. Requisite: course 150. In-depth study of surface water hydrology, including discussion and interrelationship of major topics such as rainfall and evaporation, soils and infiltration properties, runoff and snowmelt processes. Introduction to rainfall-runoff modeling, floods, and policy issues involved in water resource engineering and management. Letter grading.

250B. Groundwater Hydrology. (4) Lecture, four hours; outside study, eight hours. Requisite: course 150. Theory of movement and occurrence of water in subterranean aquifers. Steady flow in confined and unconfined aquifers. Mechanics of wells; steady and unsteady radial flows in confined and unconfined aquifers. Theory of leaky aquifers. Parameter estimation. Seawater intrusion. Numerical methods. Applications. Letter grading.

250C. Hydrometeorology. (4) Lecture, four hours; outside study, eight hours. Requisite: course 250A. In-depth study of hydrometeorological processes. Role of hydrology in climate system, precipitation and evaporation processes, atmospheric radiation, exchange of mass, heat, and momentum between soil and vegetation surface and overlying atmosphere, flux and transport in turbulent boundary layer, basic remote sensing principles. Letter grading.

250D. Water Resources Systems Engineering. (4) Lecture, four hours; outside study, eight hours. Requisite: course 151. Application of mathematical programming techniques to water resources systems. Topics include reservoir management and operation; optimal timing, sequencing and sizing of water resources projects; and multiobjective planning and conjunctive use of surface water and groundwater. Emphasis on management of water quantity. Letter grading.

251A. Rainfall-Runoff Modeling. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 250A, 251B. Introduction to hydrologic modeling concepts, including rainfall-runoff analysis, input data, uncertainty analysis, lumped and distributed modeling, parameter estimation and sensitivity analysis, and application of models for flood forecasting and prediction of streamflows in water resource applications. Letter grading.

251B. Contaminant Transport in Groundwater. (4) (Formerly numbered 251C.) Lecture, four hours; outside study, eight hours. Requisites: courses 250B, 253. Phenomena and mechanisms of hydrodynamic dispersion, governing equations of mass transport in porous media, various analytical and numerical solutions, determination of dispersion parameters by labo-

ratory and field experiments, biological and reactive transport in multiphase flow, remediation design, software packages and applications. Letter grading.

251C. Remote Sensing with Hydrologic Applications. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 250A, 250C. Introduction to basic physical concepts of remote sensing as they relate to surface and atmospheric hydrologic processes. Applications include radiative transfer modeling and retrieval of hydrologically relevant parameters like topography, soil moisture, snow properties, vegetation, and precipitation. Letter grading.

251D. Hydrologic Data Assimilation. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 250A, 250C. Introduction to basic concepts of classical and Bayesian estimation theory for purposes of hydrologic data assimilation. Applications geared toward assimilating disparate observations into dynamic models of hydrologic systems. Letter grading.

252. Engineering Economic Analysis of Water and Environmental Planning. (4) Lecture, four hours; outside study, eight hours. Requisites: course 106A, one or more courses from Economics 1, 2, 11, 100, 101. Economic theory and applications in analysis and management of water and environmental problems; application of price theory to water resource management and renewable resources; benefit-cost analysis with applications to water resources and environmental planning. Letter grading.

253. Mathematical Models for Water Quality Management. (4) Lecture, four hours; outside study, eight hours. Requisite: course 153. Development of mathematical models for simulating environmental engineering problems. Emphasis on numerical techniques to solve nonlinear partial differential equations and their application to environmental engineering problems. Letter grading.

254A. Environmental Aquatic Inorganic Chemistry. (4) Lecture, four hours; outside study, eight hours. Requisites: Chemistry 20B, Mathematics 31A, 31B, Physics 1A, 1B. Equilibrium and kinetic descriptions of chemical behavior of metals and inorganic ions in natural fresh/marine surface waters and in water treatment. Processes include acid-base chemistry and alkalinity (carbonate system), complexation, precipitation/dissolution, absorption oxidation/reduction, and photochemistry. Letter grading.

255A. Physical and Chemical Processes for Water and Wastewater Treatment. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 155, 254A. Review of momentum and mass transfer, chemical reaction engineering, coagulation and flocculation, granular filtrations, sedimentation, carbon adsorption, gas transfer, disinfection, oxidation, and membrane processes. Letter grading.

255B. Biological Processes for Water and Wastewater Treatment. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 254A, 255A. Fundamentals of environmental engineering microbiology; kinetics of microbial growth and biological oxidation; applications for activated sludge, gas transfer, fixed-film processes, aerobic and anaerobic digestion, sludge disposal, and biological nutrient removal. Letter grading.

258A. Membrane Separations in Aquatic Systems. (4) Lecture, four hours; outside study, eight hours. Requisite: course 254A. Applications of membrane separations to desalination, water reclamation, brine disposal, and ultrapure water systems. Discussion of reverse osmosis, ultrafiltration, electrodialysis, and ion exchange technologies from both practical and theoretical standpoints. Letter grading.

259A. Selected Topics in Environmental Engineering. (2) Lecture, two hours; outside study, four hours. Review of recent research and developments in environmental engineering. Water and wastewater treatment systems, nonpoint pollution, multimedia impacts. May be repeated for credit. S/U grading.

259B. Selected Topics in Water Resources. (2 to 4) Lecture, four hours; outside study, eight hours. Review of recent research and developments in water resources. Water supply and hydrology, global climate

change, economic planning, optimization of water resources development. May be taken for maximum of 4 units. Letter grading.

260. Advanced Topics in Hydrology and Water Resources. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 250A, 250B, 250D. Current research topics in inverse problem of parameter estimation, experimental design, conjunctive use of surface and groundwater, multiobjective water resources planning, and optimization of water resource systems. Topics may vary from term to term. Letter grading.

261. Colloidal Phenomena in Aquatic Systems. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 254A, 255A. Colloidal interactions, colloidal stability, colloidal hydrodynamics, surface chemistry, adsorption of pollutants on colloidal surfaces, transport of colloids in porous media, coagulation, and particle deposition. Consideration of applications to colloidal processes in aquatic environments. Letter grading.

261B. Advanced Biological Processes for Water and Wastewater Treatment. (4) Lecture, four hours; outside study, eight hours. Requisite: course 255B. In-depth treatment of selected topics related to biological treatment of waters and wastewaters, such as biodegradation of xenobiotics, pharmaceuticals, emerging pollutants, toxicity, and nutrients. Discussion of theoretical aspects, experimental observations, and recent literature. Application to important and emerging environmental problems. Letter grading.

M262A. Introduction to Atmospheric Chemistry. (4) (Same as Atmospheric and Oceanic Sciences M203A.) Lecture, three hours. Requisite for undergraduates: Chemistry 20B. Principles of chemical kinetics, thermochemistry, spectroscopy, and photochemistry; chemical composition and history of Earth's atmosphere; biogeochemical cycles of key atmospheric constituents; basic photochemistry of troposphere and stratosphere, upper atmosphere chemical processes; air pollution; chemistry and climate. S/U or letter grading.

M262B. Atmospheric Diffusion and Air Pollution. (4) (Same as Atmospheric and Oceanic Sciences M224B.) Lecture, three hours. Nature and sources of atmospheric pollution; diffusion from point, line, and area sources; pollution dispersion in urban complexes; meteorological factors and air pollution potential; meteorological aspects of air pollution. S/U or letter grading.

263A. Physics of Environmental Transport. (4) Lecture, four hours; outside study, eight hours. Designed for graduate students. Transport processes in surface water, groundwater, and atmosphere. Emphasis on exchanges across phase boundaries: sediment/water interface; air/water gas exchange; particles, droplets, and bubbles; small-scale dispersion and mixing; effect of reactions on transport; linkages between physical, chemical, and biological processes. Letter grading.

263B. Advanced Topics in Transport at Environmental Interfaces. (4) Lecture, four hours; outside study, eight hours. Requisite: course 263A. In-depth treatment of selected topics involving transport phenomena at environmental interfaces between solid, fluid, and gas phases, such as aquatic sediments, porous aggregates, and vegetative canopies. Discussion of theoretical models and experimental observations. Application to important environmental engineering problems. Letter grading.

265A. Mass Transfer in Environmental Systems. (4) Lecture, four hours; computer applications, two hours; outside study, eight hours. Designed for graduate environmental engineering program students. Physical chemistry and mass transfer fundamentals related to contaminant fate and transport in soil, air, and water systems, including soil/water sorption and desorption, contaminant retardation, vaporization and dissolution of nonaqueous phase liquids (NAPL), and other environmental systems. Letter grading.

265B. Contaminant Transport in Soils and Groundwater. (4) Lecture, four hours; computer applications, two hours; outside study, six hours. Requisites: courses 250B, 265A. Principles of mass transfer as they apply in soil and groundwater, independent estimation of transport model parameters; remediating hazardous waste sites. Letter grading.

266. Environmental Biotechnology. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 153, 254A. Environmental biotechnology—concept and potential, biotechnology of pollutional control, bioremediation, biomass conversion: composting, biogas and bioethanol production. Letter grading.

296. Advanced Topics in Civil Engineering. (2 to 4) Seminar, to be arranged. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

297. Seminar: Current Topics in Civil Engineering. (2 to 4) Seminar, to be arranged. Lectures, discussions, and student presentations and projects in areas of current interest in civil engineering. May be repeated for credit. S/U grading.

298. Seminar: Engineering. (2 to 4) Seminar, to be arranged. Limited to graduate civil engineering students. Seminars may be organized in advanced technical fields. If appropriate, field trips may be arranged. May be repeated with topic change. Letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Teaching Assistant Training Seminar. (2) Seminar, two hours. Preparation: appointment as teaching assistant in Civil and Environmental Engineering Department. Seminar on communication of civil engineering principles, concepts, and methods; teaching assistant preparation, organization, and presentation of material, including use of visual aids; grading, advising, and rapport with students. S/U grading.

596. Directed Individual or Tutorial Studies. (2 to 8) Tutorial, to be arranged. Limited to graduate civil engineering students. Petition forms to request enrollment may be obtained from assistant dean, Graduate Studies. Supervised investigation of advanced technical problems. S/U grading.

597A. Preparation for M.S. Comprehensive Examination. (2 to 12) Tutorial, to be arranged. Limited to graduate civil engineering students. Reading and preparation for M.S. comprehensive examination. S/U grading.

597B. Preparation for Ph.D. Preliminary Examinations. (2 to 16) Tutorial, to be arranged. Limited to graduate civil engineering students. S/U grading.

597C. Preparation for Ph.D. Oral Qualifying Examination. (2 to 16) Tutorial, to be arranged. Limited to graduate civil engineering students. Preparation for oral qualifying examination, including preliminary research on dissertation. S/U grading.

598. Research for and Preparation of M.S. Thesis. (2 to 12) Tutorial, to be arranged. Limited to graduate civil engineering students. Supervised independent research for M.S. candidates, including thesis prospectus. S/U grading.

599. Research for and Preparation of Ph.D. Dissertation. (2 to 16) Tutorial, to be arranged. Limited to graduate civil engineering students. Usually taken after students have been advanced to candidacy. S/U grading.

CLASSICS

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David L. Blank, Ph.D., *Chair*

Professors

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David L. Blank, Ph.D.
Shane Butler, Ph.D.
Sander M. Goldberg, Ph.D.
Katherine C. King, Ph.D.
Kathryn A. Morgan, Ph.D.
Sarah P. Morris, Ph.D. (*Steinmetz Professor of
Classical Archaeology and Material Culture*)
John K. Papadopoulos, Ph.D.
Amy E. Richlin, Ph.D.
Giulia Sissa, Ph.D.
Brent H. Vine, Ph.D.
Calvert W. Watkins, Ph.D., *in Residence*

Professors Emeriti

Bernard D. Frischer, Ph.D.
Michael W. Haslam, Ph.D.
Steven Lattimore, Ph.D.
Philip Levine, Ph.D.
Jaan Puhvel, Ph.D.

Associate Professors

Robert A. Gurval, Ph.D.
Alex C. Purves, Ph.D.

Assistant Professors

Chris J. Johanson, Ph.D.
Kathryn J. McDonnell, Ph.D.
Mario Telò, Ph.D.

Adjunct Associate Professor

Catherine Atherton, Ph.D.

Scope and Objectives

The civilizations of ancient Greece and Rome are the focus of research and teaching in the Classics Department. These areas of study are important in their own right and for their contributions to the political, cultural, intellectual, and artistic development of the Western world. To this end, the department offers a wide variety of interdisciplinary courses in classical civilization (multiple-listed in the Art History, Philosophy, and Political Science Departments), as well as elementary and advanced courses in ancient Greek and Latin language, literature, and linguistics. Classical civilization courses include such topics as Greek and Latin literature in translation (genres of epic, comedy, tragedy, biography), classical mythology, religion, law, gender and sexuality, politics, philosophy, art and archaeology, and the reception of the ancient world in modern cultures (cinema and classics).

The department offers Bachelor of Arts degrees in Classical Civilization, in Greek, in Latin, and in Greek and Latin and the Ph.D. degree in Classics. Students can earn Master of Arts degrees in Classics (Greek and Latin), in Greek, or in Latin only after they have been admitted to the Ph.D. program.

Undergraduate Study

Students considering a major in the department should consult the adviser as soon as possible in their University career, but in no case later than the point at which they are about to take upper division courses.

The majors offered in the Classics Department are designated capstone majors. Undergraduate students take a capstone seminar in which they use the skills and expertise acquired in earlier coursework to research, analyze, and complete a written paper or project. They identify and analyze ancient classical documents, material evidence, or other forms of primary sources and demonstrate their critical skills by engaging in presentations and weekly discussion with their peers.

Classical Civilization B.A.

Capstone Major

The civilizations of ancient Greece and Rome have made important contributions to the political, social, artistic, and intellectual development of the Western world. The purpose of the Classical Civilization major is to provide a formal and balanced introduction to the historical and cultural experiences of the ancient Greeks and Romans. The program of study is structured, yet not rigid. Lower division survey courses and requirements in elementary language study, ancient history, and classical art establish an essential background of knowledge, while electives encourage individual and specialized interests. The program offers a broad range of courses in the fields of language, literature, history, mythology, religion, philosophy, art, and archaeology. The major serves as excellent and rewarding preparation for a professional career in medicine, law, business, journalism, communications, or the arts.

Preparation for the Major

Required: Classics 10, 20, Greek 3 or 16 or Latin 3 or 16, and two courses from 30, 40W, 41W, 42, 51A, 51B, 87GE, 88GE.

Transfer Students

Transfer applicants to the Classical Civilization major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: one classical Greek culture course, one Roman civilization course, and one course in Greek or Roman literature in translation, classical mythology, or classical archaeology.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: (1) Ten upper division courses in the department (courses in related fields not offered by the department may be substituted by petition and with approval of the undergraduate adviser)—no more than three may be selected from Greek 100 through 133 or Latin 100 through 133, and Classics 198A and 198B may

be applied as only one course toward the major and (2) one capstone seminar (Classics 191). All other courses in the 190 series may be substituted only by petition.

Greek B.A.

Capstone Major

Preparation for the Major

Required: Classics 10, 20; Greek 1, 2, 3, 20, or equivalent. Greek 16 may be substituted for Greek 1, 2, 3.

Transfer Students

Transfer applicants to the Greek major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: one year of Greek and related courses in civilization, culture, history, linguistics, literature, and closely related languages.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: (1) Seven upper division Greek courses, including course 110; Greek 197 and 199 may be applied only by petition; (2) three upper division courses in classical civilization and/or ancient history (History 112A through 112E, 113A, 113B, 114A, 114B, 114C, 115). Courses in related fields not offered by the department may be substituted by petition and with approval of the faculty undergraduate adviser; (3) one capstone seminar (Classics 191).

Greek and Latin B.A.

Capstone Major

Preparation for the Major

Required: Classics 10, 20; Greek 1, 2, 3, 20 and Latin 1, 2, 3, 20, or equivalent. Greek 16 may be substituted for Greek 1, 2, 3.

Transfer Students

Transfer applicants to the Greek and Latin major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: one year of Greek and of Latin and related courses in civilization, culture, history, linguistics, literature, and closely related languages.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: (1) Eight upper division Greek and/or Latin courses (of which at least four must be in each language), including Greek 110 or Latin 110; Greek and/or Latin 197 and 199 may be applied only by petition; (2) three upper division courses in classical civilization and/or ancient history (History 112A through 112E, 113A, 113B, 114A, 114B, 114C, 115). Courses in related fields not offered by the department may be substituted by petition and with approval of

the faculty undergraduate adviser; (3) one capstone seminar (Classics 191).

Latin B.A.

Capstone Major

Preparation for the Major

Required: Classics 10, 20; Latin 1, 2, 3, 20, or equivalent. Latin 16 may be substituted for Latin 1, 2, 3.

Transfer Students

Transfer applicants to the Latin major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: one year of Latin and related courses in civilization, culture, history, linguistics, literature, and closely related languages.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: (1) Seven upper division Latin courses, including course 110; Latin 197 and 199 may be applied only by petition; (2) three upper division courses in classical civilization and/or ancient history (History 112A through 112E, 113A, 113B, 114A, 114B, 114C, 115). Courses in related fields not offered by the department may be substituted by petition and with approval of the faculty undergraduate adviser; (3) one capstone seminar (Classics 191).

Note: Students in the Greek, Latin, and Greek and Latin majors are permitted to take Greek 200A, 200B, 200C and Latin 200A, 200B, 200C with consent of the instructor.

Honors Program

Admission

The honors program is open to all departmental majors with a cumulative grade-point average of 3.5 or better in departmental courses and an overall GPA of 3.25 or better. Students with lower GPAs may petition for admission to the program, but these grade-point averages must be achieved before graduation in order to qualify for honors.

Requirements

All honors students are required to take Classics 191 (or an equivalent undergraduate seminar) in their junior year before beginning work on the honors thesis. Students must then enroll in Classics 198A and 198B in consecutive terms, in which they write the thesis under the direct supervision of a faculty member. They may take courses 198A and 198B concurrently or be exempt from course 198A only with approval of the faculty undergraduate adviser. In course 198A students submit an annotated bibliography and preliminary outline of their thesis. In course 198B, they submit at least one initial draft and the final revised version of the thesis. Only course 198B may be applied toward the upper division classical civilization requirement for departmental majors.

To qualify for graduation with departmental honors, students must (1) have a cumulative grade-point average of 3.5 or better in departmental courses and an overall GPA of 3.25 or better and (2) complete Classics 198A and 198B with grades of A– or better.

To qualify for graduation with departmental highest honors, students must (1) have a cumulative GPA of 3.85 or better in departmental courses and an overall GPA of 3.65 or better and (2) complete Classics 198A and 198B with grades of A.

Classical Civilization Minor

The Classical Civilization minor is designed to recognize a serious commitment to the study of the cultures and civilizations of ancient Greece and Rome. Lower division survey courses in historical studies, classical literature, mythology, and film provide an essential introduction to the imagination and power of the ancient world. Students may fulfill upper division requirements from a variety of courses in classical civilization and related fields, including political and social history, literature, art and archaeology, religion, mythology, philosophy, and cultural studies of ethnicity, gender, and sexuality in antiquity.

To enter the minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Courses (15 units): Classics 10, 20, and one course from 30, 40W, 41W, 42, 51A, 51B.

Required Upper Division Courses (20 units): Five upper division courses in classical civilization offered by the department. One course in a related field may be substituted with approval of the faculty undergraduate adviser. Classics 191 may be applied, but all other courses in the 190 series may be substituted only by petition.

A minimum of 16 upper division units applied toward the minor requirements must be in addition to units applied toward major or minor requirements in another department or program.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Greek Minor

The Greek minor is designed to recognize a serious commitment to the study of the Greek language. After a year of elementary Greek (Greek 1, 2, 3) or its equivalent, students select departmental upper division reading courses in ancient Greek prose and poetry that provide close analysis of individual texts, with attention to their historical, literary, and cultural context. Subjects of study include Homeric epic, lyric poetry, tragedy and comedy, history, rhetoric, philosophy, and the New Testament.

To enter the minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Courses (14 units): Greek 2, 3, 20, or equivalent. Greek 16 may be substituted for Greek 2 and 3.

Required Upper Division Courses (20 units): Five courses selected from Greek 100 through 133.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Latin Minor

The Latin minor is designed to recognize a serious commitment to the study of the Latin language. After a year of elementary Latin (Latin 1, 2, 3) or its equivalent, students select departmental upper division reading courses in classical (and/or late antique and medieval) Latin prose and poetry that provide close analysis of individual texts, with attention to their historical, literary, and cultural context. Subjects of study include Roman comedy, epic, lyric, elegy, satire, history, rhetoric, philosophy, epistolography, and the novel.

To enter the minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Courses (14 units): Latin 2, 3, 20, or equivalent. Latin 16 may be substituted for Latin 2 and 3.

Required Upper Division Courses (20 units): Five courses selected from Latin 100 through 133.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Classics offers the Master of Arts (M.A.) degree in Greek, Master of Arts (M.A.) degree in Latin, and Master of Arts (M.A.), Candidate in Philosophy (C.Phil.), and Doctor of Philosophy (Ph.D.) degrees in Classics. M.A. degrees can be earned only after students have been admitted to the Ph.D. program.

Classics

Lower Division Courses

10. Discovering Greeks. (5) Lecture, three hours; discussion, one hour. Knowledge of Greek not required. Study of Greek life and culture from age of Homer to Roman conquest. Readings focus on selec-

tions from works of ancient authors in translation. Lectures illustrated with images of art, architecture, and material culture. P/NP or letter grading.

20. Discovering Romans. (5) Lecture, three hours; discussion, one hour. Knowledge of Latin not required. Study of Roman life and culture from time of city's legendary foundations to end of classical antiquity. Readings focus on selections from works of ancient authors in translation. Lectures illustrated with images of art, architecture, and material culture. P/NP or letter grading.

30. Classical Mythology. (5) Lecture, three hours; discussion, one hour. Introduction to myths and legends of ancient Greece and/or Rome, role of those stories in their societies, and modern approaches to studying them. P/NP or letter grading.

40W. Reading Greek Literature: Writing-Intensive. (5) Lecture, two hours; discussion, two hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Exploration in detail and from variety of critical perspectives of carefully selected literary texts characteristic of ancient Greece and significant in Western literary tradition. Satisfies Writing II requirement. Letter grading.

41W. Reading Roman Literature: Writing-Intensive. (5) Lecture, two hours; discussion, two hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Exploration in detail and from variety of critical perspectives of carefully selected set of literary texts characteristic of ancient Rome and significant in Western literary tradition. Satisfies Writing II requirement. Letter grading.

42. Cinema and Ancient World. (5) Lecture/screenings, five hours; discussion, 75 minutes. Use of popular culture and cinema to introduce students to ancient Greek and/or Roman culture; focus at discretion of instructor. P/NP or letter grading.

51A. Art and Archaeology of Ancient Greece. (5) Lecture, three hours; discussion, one hour. Survey of major period, theme, or medium of Greek art and archaeology at discretion of instructor. P/NP or letter grading.

51B. Art and Archaeology of Ancient Rome. (5) Lecture, three hours; discussion, 75 minutes. Survey of major period, theme, or medium of Roman art and archaeology at discretion of instructor. P/NP or letter grading.

87GE. General Education Seminar Sequences. (5) Seminar, three hours. Enforced requisite: course 20. Focused study of one aspect of ancient Greek or Roman culture or reception of classical tradition. Topics are interdisciplinary in nature (literature, arts, religion, politics, culture) and make connections between ancient and postclassical eras. P/NP or letter grading.

88A-88Z. Lower Division Seminars. (4 each) Seminar, three hours. Variable topics; consult *Schedule of Classes* or department for topics to be offered in specific term. P/NP or letter grading.

88GE. General Education Seminar Sequences. (5) Seminar, three hours. Enforced requisite: course 20. Focused study of one aspect of ancient Greek or Roman culture or reception of classical tradition. Topics are interdisciplinary in nature (literature, arts, religion, politics, culture) and make connections between ancient and postclassical eras. Topics include rediscovery of Pompeii and Herculaneum; Roman religion and literature; pleasures of Greek or Roman body; and 18th-century British literature and reception of classics. P/NP or letter grading.

Upper Division Courses

M121. History of Political Thought: Ancient and Medieval Political Theory from Plato to Machiavelli. (4) (Same as Political Science M111A.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Exposition and critical analysis of major political philosophers and schools from Plato to Machiavelli. P/NP or letter grading.

M124. Modern Receptions of Ancient Political Thought. (4) (Same as Political Science M119A.) Lecture, three hours. Designed for juniors/seniors. Study of how Western culture has conceived and reinterpreted political thought of ancient Greeks and Romans. Topics include examination of influential case(s) of modern reception of classical antiquity. P/NP or letter grading.

M125. Invention of Democracy. (5) (Same as Political Science M112B.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Democracy was invented in ancient Greece. Political form grounded on equality before law, citizenship, and freedom, it came into existence as struggle by "demos," people, aware of its excellence and proud of its power, "kratos." It became only regime capable of including all members of community while disregarding wealth, status, and diverging interests. Examination of history and theory of ancient democracy. P/NP or letter grading.

137. Ancient Lives: Art of Biography. (4) Lecture, three hours. Requisite: course 10 or 20. Study of origins, development, and nature of literary genre of biography in cultures of ancient Greece and Rome. Comparisons with modern biographical traditions in literature and film. P/NP or letter grading.

140. Topics in History of Greek Literature. (4) Lecture, three hours. Requisite: course 10 or 40W. Investigation of specific issue in understanding of Greek literature, such as definition of one genre or evaluation of particular author. May be repeated for credit with topic change. P/NP or letter grading.

141. Topics in History of Latin Literature. (4) Lecture, three hours. Requisite: course 20 or 41W. Investigation of specific issue in interpretation of Latin literature, such as definition of one genre or evaluation of particular author. May be repeated for credit with topic change. P/NP or letter grading.

142. Ancient Epic. (4) Lecture, three hours. Requisite: one course from 10, 20, 30, 40W, or 41W. Homer's *Iliad* and *Odyssey*, Vergil's *Aeneid*, and Ovid's *Metamorphoses*, studied in translation. P/NP or letter grading.

143A. Ancient Tragedy. (4) Lecture, three hours. Requisite: course 10 or 40W. Survey of tragedy from 5th-century Athens through later antiquity. P/NP or letter grading.

143B. Ancient Comedy. (4) Lecture, three hours. Requisite: course 10 or 20. Survey of comedy as it developed in Greek and Roman worlds. P/NP or letter grading.

144. Topical Studies in Ancient Culture. (4) Lecture, three hours. Requisite: one course from 10, 20, 30, 40W, or 41W. Investigation of one problem in ancient culture that involves discussion of both Greek and Roman material. May be repeated for credit with topic change. P/NP or letter grading.

M145A. Ancient Greek and Roman Philosophy. (4) (Same as Philosophy M103A.) Lecture, three hours. Study of some major Greek and Roman philosophical texts, including those of pre-Socratics, Plato, Aristotle, and Hellenistic philosophers, with emphasis on historical and cultural setting of texts, their literary form, interrelations, and contribution to discussion of basic philosophical issues. P/NP or letter grading.

M145B. Later Ancient Greek Philosophy. (4) (Same as Philosophy M103B.) Lecture, three hours. Requisite: one course from M145A, Philosophy 1, 100A, M101B, or M102. Study of some major texts in Greek philosophy of Hellenistic and Roman periods. Readings vary and include works by Stoics, skeptics, philosophers of science, Neoplatonists, etc. P/NP or letter grading.

M146A. Plato—Earlier Dialogues. (4) (Same as Philosophy M101A.) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Study of selected topics in early and middle dialogues of Plato. P/NP or letter grading.

M146B. Plato—Later Dialogues. (4) (Same as Philosophy M101B.) Lecture, three hours; discussion, one hour. Requisite: course M146A. Study of selected topics in middle and later dialogues of Plato. P/NP or letter grading.

M147. Aristotle. (4) (Same as Philosophy M102.) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Study of selected works of Aristotle. P/NP or letter grading.

148. Early Greek Medicine and Thought. (5) Lecture, three hours. Requisite: course 10. Versions of medical theory and practice in context of Greek intellectual and cultural developments. Readings from medical, philosophical, and historical texts. P/NP or letter grading.

150A. Female in Greek Literature and Culture. (4) Lecture, three hours. Requisite: course 10. Interdisciplinary study of concept of female in Greek literature and culture. P/NP or letter grading.

150B. Female in Roman Literature and Culture. (4) Lecture, three hours; discussion, one hour. Requisite: course 20. Interdisciplinary study of concept of female in Roman literature and culture. P/NP or letter grading.

C151E. Archaeological Field Techniques. (12) Off-campus field archaeology, 36 hours. Preparation: at least one classical archaeology course. Training in techniques of archaeological research in field, including topographic and area survey, mapping and recording artifacts, excavation and data analysis. Conducted in Mediterranean area. Concurrently scheduled with course C251E. P/NP or letter grading.

152A. Ancient City: Greek World. (4) Lecture, three hours. Enforced requisite: course 10 or 51A or Art History 50 or History 1A. Range of interdisciplinary approaches to study of Athens and/or cities of Greek world, including Asia Minor, south Italy, and Sicily. Approaches, themes, and periods (both ancient city and receptions of city from classical antiquity to modern era) vary depending on individual instructor and topic. May be repeated for credit with topic change. P/NP or letter grading.

152B. Ancient City: Roman World. (4) (Formerly numbered 152.) Lecture, three hours. Enforced requisite: course 20 or 51B or Art History 50 or History 1A. Range of interdisciplinary approaches to study of Rome and/or cities of Italy and Roman Empire. Approaches, themes, and periods (both ancient city and receptions of city from classical antiquity to modern era) vary depending on individual instructor and topic. May be repeated for credit with topic change. P/NP or letter grading.

M153A. Minoan Art and Archaeology. (4) (Same as Art History M102A.) Lecture, three hours. Requisite: course 10 or 51A or Art History 50. Study of development of art and architecture in Minoan Crete from circa 3000 to 1000 B.C. P/NP or letter grading.

M153B. Mycenaean Art and Archaeology. (4) (Same as Art History M102B.) Lecture, three hours. Requisite: course 10 or 51A or Art History 50. Study of development of art and architecture in Mycenaean Greece from circa 2000 to 1000 B.C. P/NP or letter grading.

M153C. Archaic Greek Art and Archaeology. (4) (Same as Art History M102C.) Lecture, three hours. Requisite: course 10 or 51A or Art History 50. Study of development of art and architecture of Greek world from approximately 800 through 490 B.C. P/NP or letter grading.

M153D. Classical Greek Art and Archaeology. (4) (Same as Art History M102D.) Lecture, three hours. Requisite: course 10 or 51A or Art History 50. Study of development of art and architecture of Greek world from approximately 490 through 350 B.C. P/NP or letter grading.

M153E. Hellenistic Greek Art and Archaeology. (4) (Same as Art History M102E.) Lecture, three hours. Requisite: course 10 or 51A or Art History 50. Study of development of art and architecture of Greek world from middle of 4th century B.C., including transmittal of Greek art forms to Romans. P/NP or letter grading.

M153F. Etruscan Art. (4) (Same as Art History M102F.) Lecture, three hours. Requisite: course 20 or 51B or Art History 50. Arts of Italic peninsula from circa 1000 B.C. to end of Roman Republic. P/NP or letter grading.

M153G. Roman Art and Archaeology. (4) (Same as Art History M102G.) Lecture, three hours. Requisite: course 20 or 51B or Art History 50. Art and architecture of Rome and its Empire from circa 300 B.C. to A.D. 300. P/NP or letter grading.

M153H. Late Roman Art. (4) (Same as Art History M102H.) Lecture, three hours. Requisites: course M153G, Art History 50. Art of Roman Empire from 2nd through 4th century (A.D.). P/NP or letter grading.

M153I-M153J-M153K. Classical Archaeology. (4-4-4) (Same as Art History M102I-M102J-M102K.) Lecture, three or four hours. Requisite: one course from 10, 20, 51A, 51B, Art History 50, or History 1A. Knowledge of Greek and Latin not required. General introduction to study of Aegean, Greek, and Roman architecture, sculpture, and painting. P/NP or letter grading. **M153I.** Greco-Roman Architecture; **M153J.** Greco-Roman Sculpture; **M153K.** Greco-Roman Painting.

153M. Greeks and Romans on Bay of Naples. (4) Lecture, three hours; fieldwork, 21 hours. Recommended preparation: one course from 10, 20, 51A, 51B, or Art History 50. Four-week intensive study of history and cultures of Bay of Naples in classical antiquity. Survey of period from first settlements and colonization by Greeks in 8th century B.C.E. to destruction of Roman towns of Pompeii and Herculaneum in 1st century C.E. Daily lectures and site visits. Field trips to Naples, Cumae, Pozzuoli, Paestum, Pompeii, Herculaneum, Capri, Oplontis, and Boscoreale. Part of UCLA Summer Travel Program. P/NP or letter grading.

160. Legal Advocacy in Ancient World. (4) Lecture, three hours; discussion, one hour (when scheduled). Requisite: course 10 or 20. Study of theory and practice of legal advocacy in classical Greece and Rome. May be repeated for credit. Letter grading.

162. Classical Myth in Literature. (4) Lecture, three hours. Use of myth in principal authors and genres of Greek and Roman literature, with examples of its influence in later literatures. P/NP or letter grading.

163. Ovid and Consequences. (4) Lecture, three hours. Study of Ovid's *Metamorphoses* and persistence and extent of Roman poet's influence on subsequent literature, art, and film. Close analysis of Ovid's seminal text before turning to poem's classical, medieval, Renaissance, and modern imitators, from Apuleius to Shakespeare to Picasso and beyond. P/NP or letter grading.

164. Spectacle Entertainments of Ancient Rome. (4) Lecture, three hours. Requisite: course 20. Study of culture and politics of urban entertainment in ancient Rome, including gladiatorial competitions, chariot races, and theatrical productions. P/NP or letter grading.

165. Ancient Athletics. (4) Lecture, three hours. Requisite: course 10 or History 1A. Study of ancient Greek and Roman athletics and their connections with religion, politics, literature, and art. P/NP or letter grading.

166A. Greek Religion. (4) Lecture, three hours. Requisite: course 10 or 30. Study of religion of ancient Greeks. P/NP or letter grading.

166B. Roman Religion. (4) Lecture, three hours. Requisite: course 20. Study of religion of ancient Romans. P/NP or letter grading.

M167. Magic in Ancient World. (4) (Formerly numbered 167.) (Same as Ancient Near East M167.) Lecture, three hours; discussion, one hour (when scheduled). Requisite: course 10 or 20. Exploration of art of influencing natural course of events by occult means as practiced in ancient world at large. Coverage of beliefs in supernatural forces, rites aimed at controlling these forces effectively, and character and social roles of ritual experts in various cultures of ancient world. Source material includes types of magical spells, liter-

ary texts about magic and magicians, and artifacts such as amulets and ritual implements. P/NP or letter grading.

168. Comparative Mythology. (4) Lecture, three hours. Requisite: course 30. Religious, mythical, and/or historical traditions of Greece and Rome compared with each other and with other traditions worldwide. P/NP or letter grading.

169. Sex in Ancient World. (4) Lecture, three hours. Requisite: course 10 or 20 or History 1A. Examination of sex and gender systems of Greek and Roman cultures in ancient Mediterranean world. What Greek and Roman sex/gender systems were, how they changed over time, and difference it makes. Readings include both modern theories about sex and history as foundation for course and broad range of ancient texts in translation. P/NP or letter grading.

M170C. Power and Imagination in Byzantium. (4) (Same as History M116C.) Lecture, three hours; discussion, one hour (when scheduled). Requisites: History 116A, 116B. Designed for juniors/seniors. Study of relations of authority and intelligentsia in highly centralized Byzantine Empire. Topics include criticism of emperor, iconoclasm, intellectual freedom, attempts at reform. Letter grading.

180. Introduction to Classical Linguistics. (4) Lecture, three hours. Requisite: Greek 3 or Latin 3. Linguistic approach to Greek and Latin, including Indo-European background, etymology, pronunciation, alphabets, sociolinguistics (dialects, bilingualism), and applications to classical literature. P/NP or letter grading.

185. Origins and Nature of English Vocabulary. (5) Lecture, three hours. Origins and nature of English vocabulary, from Proto-Indo-European prehistory to current slang. Topics include Greek and Latin component in English (including technical terminology), alphabet and English spelling, semantic change and word formation, vocabulary in literature and film. P/NP or letter grading.

190. Research Colloquia in Classics. (1) Seminar, one hour. Limited to juniors/seniors. Designed to bring together students undertaking supervised tutorial research in seminar setting with one or more faculty members to discuss their own work or related work in discipline. Led by one supervising faculty member. May be repeated for credit. P/NP grading.

191. Capstone Seminar: Classics. (5) Seminar, three hours. Requisites: courses 10, 20, at least four upper division major courses. Limited to declared junior/senior departmental majors; minors may be admitted with consent of instructor. Topical research seminar on important themes, periods, genres of ancient Greek and Roman world. Intended to provide students with opportunity for serious engagement with research in discipline under close faculty supervision. Readings, discussions, oral presentations, and final research paper or project. May be repeated for credit. Letter grading.

193. Journal Club Seminars: Classics. (1) Seminar, one hour. Limited to undergraduate students. Group discussion of readings and topics selected from current issues in classics and related disciplines. May be repeated for credit. P/NP grading.

197. Individual Studies in Classics. (2 to 4) Tutorial, two hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

198A-198B. Honors Research in Classics. (2-5) Limited to junior/senior departmental honors program students. May be repeated for credit. Individual contract required. **198A.** Tutorial, six hours. Requisite: course 191. Tutorial under direct supervision of faculty member. Research and development of thesis outline in preparation of paper to be completed in course 198B. In Progress grading. **198B.** Tutorial, 15 hours. Requisite: course 198A. Completion of final research thesis under direct supervision of faculty member. Letter grading.

199. Directed Research in Classics. (2 to 4) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200. History of Classical Scholarship. (4) Lecture, four hours. S/U or letter grading.

201B. Topics in Ancient History: Roman World. (2 or 4) Seminar, three hours. Introduction to basic methods and approaches to study of Roman history by intensive examination of selected topics, including readings of ancient texts and modern scholarship. S/U or letter grading.

M218. Paleography of Latin and Vernacular Manuscripts, 900 to 1500. (4) (Same as English M215, French M210, and History M218.) Lecture, three hours; discussion, two hours. Introduction to history of Latin and vernacular manuscript book from 900 to 1500 to (1) train students to make informed judgments with regard to place and date of origin, (2) provide training in accurate reading and transcription of later medieval scripts, and (3) examine manuscript book as witness to changing society that produced it. Focus on relationship between Latin manuscripts and vernacular manuscripts with regard to their respective presentation of written texts. S/U or letter grading.

220A. Interfaces: Transmission of Roman Literature. (4) (Formerly numbered M220A.) Lecture, three hours. Examination of transmission of Latin classical literature in late antiquity, Middle Ages, and Renaissance to understand processes by which Latin literature has been preserved. S/U or letter grading.

230A-230B. Language in Ancient Asia Minor. (4) Lecture, three hours. Course 230A is requisite to 230B. Survey of language situation in Anatolia in 2nd and 1st millennia B.C. Readings in Hittite, Palaic, Luwian, Hieroglyphic, Lycian, and Lydian texts. Anatolian-Greek relationships and survivals in classical and Hellenistic times. S/U or letter grading.

244. Textual Criticism: Studies in Preparation of Critical Edition of Greek and/or Latin Texts. (4) Seminar, three hours. Different steps required in preparation of critical edition of ancient text: localizing manuscripts; collation; establishing stemma; selecting right reading on basis of knowledge of context, of language of author, and of sources; emendations; formulation of *apparatus criticus* and *apparatus fontium*. S/U or letter grading.

245. Computing and Classics. (4) Discussion, three hours. Introduction to processing and analysis of digitized texts of classical authors for purposes of literary history and criticism. Letter grading.

246. Greek and Latin Meter. (4) Lecture, three hours. Comprehensive study of meter as it functions in classical poetry. S/U or letter grading.

250. Topics in Greek and Roman Culture and Literature. (2 or 4) Seminar, three hours. Interdisciplinary study on topics of ancient Greek and Roman culture and/or literature. May be repeated for credit with topic change. S/U or letter grading.

251A. Seminar: Classical Archaeology—Aegean Bronze Age. (2 or 4) Seminar, three hours. S/U or letter grading.

251B. Seminar: Classical Archaeology—Greco-Roman Architecture. (4) Seminar, three hours. S/U or letter grading.

251C. Seminar: Classical Archaeology—Greco-Roman Sculpture. (4) Seminar, three hours. S/U or letter grading.

251D. Seminar: Classical Archaeology—Greco-Roman Painting. (2 or 4) Seminar, three hours. Studies in style and iconography of various periods of Aegean, Greek, and Roman painting. May be repeated for credit with consent of instructor. S/U or letter grading.

C251E. Archaeological Field Techniques. (12) Off-campus field archaeology, 36 hours. Preparation: at least one classical archaeology course. Training in

techniques of archaeological research in field, including topographic and area survey, mapping and recording artifacts, excavation and data analysis. Conducted in Mediterranean area. Concurrently scheduled with course C151E. S/U or letter grading.

252. Topography and Monuments of Athens. (2 or 4) Lecture, two or four hours. Detailed studies in topography and monuments of Athens, combining evidence of literature, inscriptions, and actual remains. S/U or letter grading.

253. Topography and Monuments of Rome. (2 or 4) Lecture, two or four hours. Detailed studies in topography and monuments of ancient Rome, combining evidence of literature, inscriptions, and actual remains. S/U or letter grading.

260. Topics in Ancient Religion. (2 or 4) Seminar, three hours. S/U or letter grading.

268. Seminar: Comparative Mythology. (2 or 4) Seminar, three hours. Requisite: course 168. Advanced study of selected topics in comparing Greek and Roman traditions with other ancient Near Eastern and European societies. S/U or letter grading.

287. Graduate Colloquium in Classical Literature. (2) Seminar, three hours. Survey of basic methods of and approaches to classical scholarship, including textual criticism, literary interpretation and theory, hermeneutics, interdisciplinary studies, and computer applications to classics. Emphasis varies from year to year, depending on instructor(s). May be repeated for credit with topic change. S/U grading.

288. Literary Theory. (2 or 4) Discussion, three hours. Designed for graduate students. Introduction to chief texts in literary theory and criticism for readers of classical literature, with application to classical texts. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Teaching Classics. (2) Seminar, two hours. Normally to be taken by all graduate students in term before or during their first assignments as teaching assistants. Seminar/workshop in various pedagogical issues and strategies in preparation for teaching classical civilization, Greek, and/or Latin undergraduate courses. Readings and group discussions in topics related to teaching in field of classics. May not be applied toward M.A. or Ph.D. course requirements. S/U grading.

596. Directed Individual Study or Research. (2 to 8) Tutorial, to be arranged. S/U grading.

597. Study for M.A. Comprehensive Examination or Ph.D. Qualifying Examinations. (2 to 8) Tutorial, to be arranged. S/U grading.

599. Research for Ph.D. Dissertation. (2 to 8) Tutorial, to be arranged. S/U grading.

Greek

Lower Division Courses

1. Elementary Greek. (5) Lecture, three hours; discussion, two hours. P/NP or letter grading.

2. Elementary Greek. (5) Lecture, three hours; discussion, two hours. Enforced requisite: course 1. P/NP or letter grading.

3. Elementary Greek. (5) Lecture, three hours; discussion, two hours. Enforced requisite: course 2. P/NP or letter grading.

8. Modern Greek Conversation. (4) Lecture, three hours. Introduction to basic elements of modern Greek conversation for beginning students, including those with some knowledge of ancient (Attic) Greek. Conducted in modern Greek, with in-class conversation drills, regular homework assignments, and weekly quizzes. P/NP or letter grading.

15. Elementary Modern Greek. (12) Lecture, 18 to 19 hours. Eight-week intensive introduction to principles of speaking, reading, and writing modern (demotic) Greek. Offered in summer only. P/NP or letter grading.

16. Intensive First-Year Greek. (12) Lecture, 19 hours. Eight-week intensive introduction to Greek language equivalent to courses 1, 2, and 3. Offered in summer only. P/NP or letter grading.

20. Intermediate Greek. (4) Lecture, three hours; discussion, one hour (when scheduled). Requisite: course 3 or 16. Formal review of Greek grammar and development of skills in reading original texts of Greek prose. Readings selected to introduce literature and culture of ancient Greece. P/NP or letter grading.

Upper Division Courses

100. Readings in Greek Prose. (4) Lecture, three to four hours. Enforced requisite: course 20. Selections from Plato and other classical Greek texts, along with grammar review. P/NP or letter grading.

101A. Homer: *Odyssey*. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

101B. Homer: *Iliad*. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

102. Lyric Poets. (4) Lecture, three hours. Requisite: course 100. Selections from Archilochus to Bacchylides. P/NP or letter grading.

103. Aeschylus. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

104. Sophocles. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

105. Euripides. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

106. Aristophanes. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

107. Hesiod. (4) Lecture, three hours. Requisite: course 100. Reading of *Theogony* and excerpts from *Works and Days*, with emphasis on Hesiod's place in Greek literature and his role in transmission of Greek mythology. P/NP or letter grading.

110. Study of Greek Prose. (4) Lecture, three to four hours. Requisite: course 100. Work in sight reading and grammatical analysis of Attic prose texts; writing Attic prose. P/NP or letter grading.

111. Herodotus. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

112. Thucydides. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

113. Attic Orators. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

115. Xenophon. (4) Lecture, three hours. Requisite: course 100. Reading of one major work of Xenophon—*Memorabilia*, *Cyropaedia*, *Anabasis*, *Hellenica*, or *Oeconomicus*—in Greek. P/NP or letter grading.

121. Plato. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

122. Plato: *Republic*. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

123. Aristotle: *Poetics and Rhetoric*. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

124. Aristotle: *Ethics*. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

130. Readings in New Testament. (4) Lecture, three hours. Requisite: course 3. P/NP or letter grading.

131. Readings in Later Greek. (4) Lecture, three hours. Requisite: course 100. Topics vary from year to year and include "Longinus," On Sublime; Marcus Aurelius; Arrian; Second Sophistic; Plutarch; later epic; epigram; epistolographi Graeci. P/NP or letter grading.

132. Survey of Byzantine Literature. (4) Lecture, three hours. Requisite: course 100. Readings based on (1) *Anthology of Byzantine Prose*, ed. Nigel Wilson and (2) *Oxford Book of Medieval and Modern Greek Verse*, ed. C.A. Trypanis, or if unavailable, *Poeti bizan-*

tini, ed. R. Cantarella. In addition, necessary historical and cultural background provided by readings and lectures. P/NP or letter grading.

133. Readings in Byzantine Literature. (4) Lecture, three hours. Requisite: course 132. Topics vary from year to year and include Procopius, Agathias, Michael Psellus, Alexiad of Anna Comnena, and Digenis Akritas. P/NP or letter grading.

197. Individual Studies in Greek. (2 to 4) Tutorial, two hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

199. Directed Research in Greek. (2 to 4) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200A-200B-200C. History of Greek Literature. (4-4-4) Lecture, three hours. Lectures on history of Greek literature, supplemented by reading of Greek texts in original language. Each course may be taken independently for credit. S/U or letter grading.

201A-201B. Homer: *Iliad*. (2 or 4 each) Lecture, three hours. Course 201A is requisite to 201B. S/U (2-unit course) or letter (4-unit course) grading.

202A-202B. Homer: *Odyssey* and *Epic Cycle*. (2 or 4 each) Lecture, three hours. Course 202A is requisite to 202B. S/U (2-unit course) or letter (4-unit course) grading.

203. Hesiod. (2 or 4) Seminar, three hours. S/U (2-unit course) or letter (4-unit course) grading.

204. Homeric Hymns. (2 or 4) Seminar, three hours. S/U (2-unit course) or letter (4-unit course) grading.

205. Aeschylus. (2 or 4) Seminar, three hours. S/U (2-unit course) or letter (4-unit course) grading.

206A-206B. Sophocles. (2 or 4 each) Lecture, three hours. Course 206A is requisite to 206B. S/U (2-unit course) or letter (4-unit course) grading.

207A-207B. Euripides. (2 or 4 each) Lecture, three hours. Course 207A is requisite to 207B. S/U (2-unit course) or letter (4-unit course) grading.

208A-208B. Aristophanes. (2 or 4 each) Lecture, three hours. Course 208A is requisite to 208B. S/U (2-unit course) or letter (4-unit course) grading.

209A-209B. Seminars: Hellenistic Poetry. (2 or 4 each) Seminar, three hours. S/U (2-unit course) or letter (4-unit course) grading.

210. Advanced Greek Prose Composition. (4) Lecture, three hours. Requisite: course 110. S/U or letter grading.

211A-211B. Herodotus. (2 or 4 each) Lecture, three hours. Course 211A is requisite to 211B. S/U (2-unit course) or letter (4-unit course) grading.

212A-212B. Thucydides. (2 or 4 each) Lecture, three hours. Course 212A is requisite to 212B. S/U (2-unit course) or letter (4-unit course) grading.

213. Greek Historiography. (2 or 4) Seminar, three hours. S/U (2-unit course) or letter (4-unit course) grading.

214. Demosthenes. (2 or 4) Lecture, three hours. S/U (2-unit course) or letter (4-unit course) grading.

215. Early Greek Orators. (2 or 4) Seminar, three hours. Studies in works of Antiphon, Andocides, and Lysias. S/U (2-unit course) or letter (4-unit course) grading.

216. Menander. (2 or 4) Seminar, three hours. S/U (2-unit course) or letter (4-unit course) grading.

217A-217B. Greek Lyric Poetry. (2 or 4 each) Seminar, three hours. Each course may be taken independently for credit. S/U (2-unit course) or letter (4-unit course) grading. **217A.** Archaic Lyric. Study of lyric poetry of Archaic period, both choral and monodic, with elegiac and iambic included. **217B.** Pindar and

Bacchylides. Study of choral odes of Pindar and Bacchylides, with special attention to conventions of epician.

220. Greek Novel. (2 or 4) Seminar, three hours. Study of Greek romance and its place in Greek literature. Two texts (*Chariton: Chaereas and Callirhoe* and Longus: *Daphnis and Chloe*) studied in some detail. S/U (2-unit course) or letter (4-unit course) grading.

221. Pre-Socratic Philosophers. (2 or 4) Seminar, three hours. S/U (2-unit course) or letter (4-unit course) grading.

222A-222B. Plato. (2 or 4 each) Lecture, three hours. Course 222A is requisite to 222B. S/U (2-unit course) or letter (4-unit course) grading.

223A-223B. Aristotle. (2 or 4 each) Lecture, three hours. Course 223A is requisite to 223B. S/U (2-unit course) or letter (4-unit course) grading.

224. Post-Aristotelian Philosophy. (2 or 4) Seminar, three hours. S/U (2-unit course) or letter (4-unit course) grading.

229. Sight Translation. (2) Seminar, three hours. Preparation: graduate-level knowledge of ancient Greek. Practice in translation of previously unseen texts from variety of authors and genres. Topics include peculiarities of style and vocabulary of distinct genres, literary versus scholarly translation, semantic properties of particular words and constructions. S/U grading.

231A-231B-231C. Later Greek and Byzantine Literature. (2 or 4 each) Seminar, three hours. Studies in various aspects of Byzantine Greek language and literature. Topics vary from year to year. Each course may be taken independently and may be repeated for credit with topic change. S/U (2-unit course) or letter (4-unit course) grading.

233. Byzantine Poetry. (2 or 4) Lecture, three hours. Study of main representatives of both religious and secular poetry. S/U (2-unit course) or letter (4-unit course) grading.

240A-240B. History of Greek Language. (2 or 4 each) Lecture, four hours. S/U or letter grading.

240A. Linguistic history of classical Greek. **240B.** Requisite: course 240A. Postclassical, medieval, and modern Greek.

241. Greek Epigraphy. (4) Lecture, three hours. Survey of Greek historical inscriptions, chiefly Attic. S/U or letter grading.

242. Greek Dialects and Historical Grammar. (2 or 4) Lecture, three hours. Linguistic situation in early Greece. Readings in classical Greek dialectal texts. Greek grammar in context of common Greek and Indo-European linguistics. S/U or letter grading.

243. Mycenaean Greek. (2 or 4) Seminar, three hours. Script, language, and grammar of Linear B inscriptions; their relevance to ancient Greek linguistic and cultural history. S/U or letter grading.

244. Greek Papyrology. (4) Lecture, three hours. Preparation: reading knowledge of Greek. Introduction to Greek papyri, considered both as historical documents and as carriers of literature. S/U or letter grading.

245. Greek Paleography. (4) Lecture, three hours. Studies in development of book hand in Greek manuscripts earlier than invention of printing. S/U or letter grading.

250. Topical Studies of Ancient Greece. (2 or 4) Lecture, three hours. Advanced study of some aspect of ancient Greek language, literature, and/or culture. May be repeated for credit with topic change. S/U (2-unit course) or letter (4-unit course) grading.

596. Directed Individual Study or Research. (2 to 8) Tutorial, to be arranged. S/U grading.

597. Study for M.A. Comprehensive Examination or Ph.D. Qualifying Examinations. (2 to 8) Tutorial, to be arranged. S/U grading.

599. Research for Ph.D. Dissertation. (2 to 8) Tutorial, to be arranged. S/U grading.

Latin

Lower Division Courses

1. Elementary Latin. (5) Lecture, three hours; discussion, two hours. P/NP or letter grading.

1G. Elementary Latin for Graduate Students. (No credit) Lecture, eight hours. Concurrently scheduled with course 14. No grading.

2. Elementary Latin. (5) Lecture, three hours; discussion, two hours. Enforced requisite: course 1. P/NP or letter grading.

3. Elementary Latin. (5) Lecture, three hours; discussion, two hours. Enforced requisite: course 2 or 14. P/NP or letter grading.

14. Elementary Latin: Intensive. (10) Lecture, 10 hours. Declensions of nouns and adjectives, conjugations in indicative mood, and primary uses of subjunctive mood. Emphasis on development of ability to read easy selections of classical prose. P/NP or letter grading.

16. Intensive First-Year Latin. (12) Lecture, 19 hours. Eight-week intensive introduction to Latin language equivalent to courses 1, 2, and 3. Offered in summer only. P/NP or letter grading.

20. Intermediate Latin. (4) Lecture, three hours; discussion, one hour (when scheduled). Requisite: course 3 or 16. Formal review of Latin grammar and syntax and development of skills in reading original texts of Latin prose. Readings selected to introduce literature and culture of ancient Rome. P/NP or letter grading.

Upper Division Courses

100. Readings in Latin Prose and Poetry. (4) Lecture, three hours. Enforced requisite: course 20. Close study of prose text supplemented with related readings in poetry. Attention to historical and cultural context. Course is normally requisite to other courses in Latin 100 series. P/NP or letter grading.

101. Plautus. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

102. Terence. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

103. Lucretius. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

104. Ovid. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

105A. Beginning Vergil: Selections from *Aeneid* I-VI. (4) Lecture, three hours. Requisite: course 100. Reading of one or more books from first half of *Aeneid*, designed especially for students with only limited experience in reading Latin poetry. May be repeated for credit with change in readings and consent of instructor. P/NP or letter grading.

105B. Advanced Vergil. (4) Lecture, three hours. Requisite: course 105A. Reading and discussion of Vergil's *Eclogues*, *Georgics*, and/or second half of *Aeneid*. May be repeated for credit with change in readings. P/NP or letter grading.

106. Catullus. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

107. Horace. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

108. Roman Elegy. (4) Lecture, three hours. Requisite: course 100. Selections from Catullus, Tibullus, and Propertius. P/NP or letter grading.

109. Roman Satire. (4) Lecture, three hours. Requisite: course 100. Readings from author(s) of Roman satire, including Horace, Persius, and Juvenal, or related satiric texts. May be repeated for credit with change in readings and consent of instructor. P/NP or letter grading.

110. Study of Latin Prose. (4) Lecture, three hours. Requisite: course 100. Work in sight reading and grammatical analysis of classical prose texts; writing of classical prose. P/NP or letter grading.

111. Livy. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

112. Tacitus. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

113. Cicero: *Orations*. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

114. Roman Epistolography: Cicero and Pliny. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

115. Caesar. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

116. Roman Novel. (4) Lecture, three hours. Requisite: course 100. Reading and discussion of either Petronius' *Satyricon* or Apuleius' *Metamorphoses* and development of genre of prose novel in antiquity. May be repeated for credit with change in author and text. P/NP or letter grading.

117. Sallust. (4) Lecture, three hours. Requisite: course 100. P/NP or letter grading.

118. Seneca. (4) Lecture, three hours. Requisite: course 100. Selection of Seneca's works read in Latin. P/NP or letter grading.

119A. Readings in Roman Prose. (4) Lecture, three hours. Requisite: course 100. Readings of selected Roman prose author(s). Topics may vary from year to year and may be organized in terms of chronology (Republican or imperial), literary genre (Roman biography, antiquarian learning, or science), and/or theme. May be repeated for credit with topic change. P/NP or letter grading.

119B. Readings in Roman Poetry. (4) Lecture, three hours. Requisite: course 100. Readings of selected Roman poetry author(s). Topics may vary from year to year and may be organized in terms of chronology (Republican or imperial), epic, lyric, elegy, and/or theme. May be repeated for credit with topic change. P/NP or letter grading.

120. Vulgate. (4) Lecture, three hours. Requisite: course 3. Reading of selected chapters of St. Jerome's translation of Bible, with emphasis on unclassical features of Latin. P/NP or letter grading.

121. Patristic Texts. (4) Lecture, three hours. Requisite: course 100. Reading and discussion of one or more Latin patristic texts (especially works of Ambrose, Augustine, and/or Jerome), with emphasis on specific features of patristic, as opposed to classical, Latin. P/NP or letter grading.

130. Introduction to Postclassical Latin. (4) Lecture, three hours. Basic competence in classical Latin required. Readings in postclassical Latin. P/NP or letter grading.

131. Postclassical Latin Prose. (4) Lecture, three hours. Advanced readings of selected texts in postclassical Latin prose. P/NP or letter grading.

133. Postclassical Latin Poetry. (4) Lecture, three hours. Advanced readings of selected texts in postclassical Latin poetry. P/NP or letter grading.

197. Individual Studies in Latin. (2 to 4) Tutorial, two hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

199. Directed Research in Latin. (2 to 4) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200A-200B-200C. History of Latin Literature (4-4-4). Lecture, three hours. Lectures on history of Latin literature, supplemented by reading of Latin texts in original language. Each course may be taken independently for credit. S/U or letter grading.

201. Roman Epic Tradition. (2 or 4) Seminar, three hours. Close study of one epic poet other than Vergil (e.g., Ennius, Lucan, Valerius Flaccus, Statius, Silius

COMMUNICATION STUDIES

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Kyu S. Hahn, Ph.D.

Kerri L. Johnson, Ph.D.

Senior Lecturers

Marde S. Gregory, M.A.

Thomas E. Miller, M.A.

Paul Von Blum, J.D.

Lecturers

Dee A. Bridgewater, Ph.D.

Dmitry Gorin, J.D.

Pamela J. Hobbs, J.D., Ph.D.

William Kelly, Ph.D.

Karyl K. Kicenski, Ph.D.

John Kochian, M.A.

Steven M. Peterson, Ph.D.

Michael W. Suman, Ph.D.

Adjunct Assistant Professor

Barry Sanders, J.D.

Scope and Objectives

The major in Communication Studies is an interdisciplinary curriculum leading to a Bachelor of Arts degree. It seeks to provide students with a comprehensive knowledge of the nature of human communication, the symbol systems by which it functions, the environments in which it occurs, its media, and its effects. Employing critical and empirical approaches, the major draws its resources from the social sciences, humanities, and fine arts. Two areas of focus are offered: the concentration in mass communication centers on formal and institutional communication systems and the macrocosmic social contexts in which they function; the concentration in interpersonal communication centers on face-to-face communicative interaction in the small group environment.

Undergraduate Study

Communication Studies B.A.

Students fulfilling the major in Communication Studies must complete the seven required lower division courses and a minimum of 14 upper division courses as set forth below. Enrollment in the major is limited. Admission to the major is by application to the committee in

Italicus), with attention to literary tradition of epic. May be repeated for credit with topic change. S/U (2-unit course) or letter (4-unit course) grading.

202. Seminar: Catullus. (2 or 4) Seminar, three hours. Detailed consideration of entire Catullan corpus. S/U (2-unit course) or letter (4-unit course) grading.

203A. Elegiac Poetry. (2 or 4) Lecture, three hours. S/U (2-unit course) or letter (4-unit course) grading.

203B. Propertius. (2 or 4) Lecture, three hours. Course 203A is not requisite to 203B. S/U (2-unit course) or letter (4-unit course) grading.

204A-204B. Vergil's Aeneid. (2 or 4 each) Lecture, three hours. Course 204A is requisite to 204B. S/U (2-unit course) or letter (4-unit course) grading.

205A. Seminar: Vergil's Bucolics. (2 or 4) Seminar, three hours. S/U (2-unit course) or letter (4-unit course) grading.

205B. Seminar: Vergil's Georgics. (2 or 4) Seminar, three hours. Course 205A is not requisite to 205B. Close reading of Vergil's text; careful evaluation of influential criticism on poem, much of it recent; examination of work's place within tradition of rural poetry. S/U (2-unit course) or letter (4-unit course) grading.

206. Horace. (2 or 4) Lecture, three hours. S/U (2-unit course) or letter (4-unit course) grading.

207. Roman Comedy. (2 or 4) Seminar, three hours. Survey of history of Roman comedy. S/U (2-unit course) or letter (4-unit course) grading.

208. Ovid. (2 or 4) Seminar, three hours. S/U (2-unit course) or letter (4-unit course) grading.

209. Seminar: Roman Satire. (2 or 4) Seminar, three hours. Detailed study of one individual satirist, with attention to his position in development of satirical genre in Roman literature. Choice of author varies from year to year. Close study of text, of characteristics of writer as social critic and artist, and of contemporary literary and social environment. S/U (2-unit course) or letter (4-unit course) grading.

210. Advanced Latin Prose Composition. (4) Lecture, three hours. Requisite: course 110. S/U or letter grading.

211A-211B-211C. Seminars: Roman Historians. (2 or 4 each) Seminar, three hours. Study of considerable portions of writings of following historians. Each course may be taken independently for credit. S/U (2-unit course) or letter (4-unit course) grading. **211A.** Sallust; **211B.** Livy; **211C.** Tacitus.

214. Ancient Biography: Roman Lives. (2 or 4) Seminar, three hours. Study of biography in ancient Rome. Literary survey or focused readings on lives of Cornelius Nepos, Suetonius, Tacitus, or imperial chroniclers of 4th century C.E. S/U (2-unit course) or letter (4-unit course) grading.

215. Seminar: Roman Novel. (2 or 4) Seminar, three hours. Works such as Petronius' *Satyricon* and Apuleius' *Metamorphoses*: study of literary problems. May be repeated for credit with topic change. S/U (2-unit course) or letter (4-unit course) grading.

216. Roman Rhetoric. (2 or 4) Seminar, three hours. Close study of one rhetorical text (e.g., *Rhetorica ad Herennium*, Cicero's *de Oratore*, Seneca's *Controversiae* or *Suasoriae*, Quintilian's *Institutio*), with attention to its place in rhetorical tradition. May be repeated for credit with topic change. S/U (2-unit course) or letter (4-unit course) grading.

220. Cicero's Orations. (2 or 4) Seminar, three hours. S/U (2-unit course) or letter (4-unit course) grading.

221A. Cicero's Philosophical Works. (2 or 4) Lecture, three hours. S/U (2-unit course) or letter (4-unit course) grading.

221B. Cicero: De Natura Deorum. (2 or 4) Lecture, three hours. Course 221A is not requisite to 221B. S/U (2-unit course) or letter (4-unit course) grading.

222. Seminar: Roman Stoicism. (2 or 4) Seminar, three hours. S/U (2-unit course) or letter (4-unit course) grading.

223. Lucretius. (2 or 4) Lecture, three hours. S/U (2-unit course) or letter (4-unit course) grading.

224. Seneca. (2 or 4) Seminar, three hours. Detailed study of one work of prose or poetry by younger Seneca. May be repeated for credit with topic change. S/U (2-unit course) or letter (4-unit course) grading.

229. Sight Translation. (2) Seminar, three hours. Preparation: graduate-level knowledge of Latin. Practice in translation of previously unseen texts from variety of authors and genres. Topics include peculiarities of style and vocabulary of distinct genres, literary versus scholarly translation, semantic properties of particular words and constructions. S/U grading.

231A-231B. Seminars: Medieval Latin. (2 or 4 each) Seminar, three hours. Preparation: at least one upper division Latin course. Course 231A is not requisite to 231B. Studies in various areas of language and literature of medieval Latin. May be repeated for credit with consent of instructor. S/U (2-unit course) or letter (4-unit course) grading.

232. Vulgar Latin. (2 or 4) Lecture, three hours. History and characteristics of popular Latin; its development into early forms of Romance languages. S/U or letter grading.

235. Late Latin Poetry. (2 or 4) Seminar, three hours. Close study, with attention to literary and historical background, of work of one or several poets who flourished between death of Ovid and fall of Roman Empire. May be repeated for credit with change in author. S/U or letter grading.

236. Late Latin Prose. (2 or 4) Seminar, three hours. Close study, with attention to literary and historical background, of work of one or several prose authors who flourished between death of Tacitus and fall of Roman Empire. May be repeated for credit with change in author. S/U or letter grading.

240. History of Latin Language. (2 or 4) Lecture, three hours. Development of Latin from earliest monuments until its emergence in Romance languages. S/U or letter grading.

242. Italic Dialects and Latin Historical Grammar. (2 or 4) Lecture, three hours. Linguistic situation in early Italy. Readings in Oscan, Umbrian, and early Latin texts. Latin grammar in context of Italic and Indo-European linguistics. S/U or letter grading.

243. Seminar: Latin Paleography. (4) Seminar, three hours. Studies in development of book hand in Latin manuscripts earlier than invention of printing. S/U or letter grading.

245. Neo-Latin. (2 or 4) Seminar, three hours. Preparation: at least two upper division Latin courses. Requisite: course 100. Survey of texts by one or more authors from Renaissance to present, written on related topics. S/U or letter grading.

495. College Teaching of Latin. (2) Seminar, to be arranged. Preparation: appointment as teaching assistant. Methodology of instruction in conjunction with classroom practice. May be repeated for credit. S/U grading.

596. Directed Individual Study or Research. (2 to 8) Tutorial, to be arranged. S/U grading.

597. Study for M.A. Comprehensive Examination or Ph.D. Qualifying Examinations. (2 to 8) Tutorial, to be arranged. S/U grading.

599. Research for Ph.D. Dissertation. (2 to 8) Tutorial, to be arranged. S/U grading.

charge. Applications are available at <http://www.commmstudies.ucla.edu> to regularly enrolled UCLA students during Spring Quarter.

Preparation for the Major

Students are encouraged but not required to complete as many lower division preparation for the major courses as possible before admission to the program.

Required Lower Division Courses: Communication Studies 1, 10, one course selected from Anthropology 33, Communication Studies M70, Linguistics 1, or Sociology 24, one statistics course from Economics 41, Statistics 10, or 11. Three additional courses must be selected from Political Science 40, Psychology 10, Sociology 1, and Economics 1 or 2 or 5 or Political Science 30.

Transfer Students

Transfer applicants to the Communication Studies major with 90 or more units must complete at least two of the following seven lower division required courses: Communication Studies 10 or one interpersonal communication and one mass communication course, one public address course, one linguistics course, one statistics course, and three courses from psychology, American government, sociology, and microeconomics or macroeconomics or political economy.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required Core Courses: Communication Studies 100, 101, 150.

Interpersonal Communication Concentration

Each course may be applied toward only one requirement.

Required: Eleven upper division courses as follows:

- Eight interpersonal communication courses, six of which must be in communication studies, selected from Anthropology 135A, 135B, M140, 141, 142A, 142B, Communication Studies 113, 114, 115, 116, M117, 118, 119, 120, 121, M123W, M124, M125, 126, M127, 128, 129, 130, M144A, M144B, 182, 188B, 191B, Linguistics 103, 170, Philosophy 172, Psychology 137C, M165, 177, 178, Psychology 135 or Sociology 132, Psychology 137I or Sociology 135, Sociology 134, and 156 or 160
- Three mass communication courses selected from Communication Studies 122, 131, 132, 133, M135, 139, 140, 141, 143, 146, M147, 148, M149, 151, 152, M153, 154, 155, 156, 158, M159, 160, M161, 162, M165, 166, 170, 171, 173, 174, M176, 177, 178, 179, 180, 183, 184, 186, 187, 188A, 191A, Film and Television 106A, 108, 110A, and 116 or Communication Studies 175

Mass Communication Concentration

Each course may be applied toward only one requirement.

Required: Eleven upper division courses as follows:

- Eight mass communication courses, six of which must be in communication studies, selected from Communication Studies 122, 131, 132, 133, M135, 139, 140, 141, 143, 146, M147, 148, M149, 151, 152, M153, 154, 155, 156, 158, M159, 160, M161, 162, M165, 166, 170, 171, 173, 174, M176, 177, 178, 179, 180, 183, 184, 186, 187, 188A, 191A, English 115A, Film and Television 106A, 108, 110A, 116 or Communication Studies 175, History 140A, 140B, 140C, 142A, 142B, 147A, 147B, Political Science 114A, 114B, and Political Science 141B or Sociology 133
- Three interpersonal communication courses selected from Anthropology 135A, 135B, M140, 141, 142A, 142B, Communication Studies 113, 114, 115, 116, M117, 118, 119, 120, 121, M123W, M124, M125, 126, M127, 128, 129, 130, M144A, M144B, 182, 188B, 191B, Linguistics 103, 170, Philosophy 172, Psychology 137C, M165, 177, 178, Psychology 135 or Sociology 132, Psychology 137I or Sociology 135, Sociology 134, and 156 or 160

Computing Specialization

Majors in Communication Studies may select a specialization in Computing by (1) satisfying all the requirements for a bachelor's degree in the major, (2) completing Program in Computing 10A and 10B, and (3) completing four courses (at least one of which must be in communication studies) from Communication Studies 151, 154, 158, Program in Computing 10C, 20A, 20B, 40A. Courses need to be completed with a minimum grade of C– in each course and a combined grade-point average of at least 2.0. Students must petition for admission to the program and are advised to do so after they complete Program in Computing 10B (petitions should be filed in the Counseling Office). Students graduate with a bachelor's degree in communication studies and a specialization in Computing.

Communication Studies

Lower Division Courses

- Principles of Oral Communication. (4)** (Formerly numbered Speech 1.) Lecture, four hours. Enforced prerequisite: satisfaction of Entry-Level Writing requirement. Examination of foundations of communication and public speaking. Consideration of number of basic theories related to study of communication and development of skills to enable composition and delivery of speeches in accordance with specific rhetorical concepts. Improvement of ability to analyze, organize, and critically think about communicative messages while becoming better equipped to articulate ideas. P/NP or letter grading.

1A. Public Speaking for Nonnative Speakers. (4)

(Formerly numbered Speech 1, 1A.) Lecture, four hours. Designed for nonnative speakers of English to increase fluency and vocabulary while improving presentation skills, language usage, reasoning, style, and delivery. Conversation and pronunciation practice. Focus on theory and practice of public speaking, including selection of content, organization of ideas, language, and delivery. Practice in extemporaneous and manuscript speaking. Critical analysis of speeches in both contemporary and historical settings. Special emphasis on group discussions, evaluations, practice of both public and private speaking skills. Offered in summer only. P/NP or letter grading.

1B. Learning American English and Culture from Movies. (4)

Lecture, four hours. Advancement of students' fluency in conversational English while increasing their awareness of American popular culture. Primer on American-style colloquial English and nuances of contemporary customs and values offered through guided immersion in popular cinema. Offered only in summer. P/NP or letter grading.

10. Introduction to Communication Studies. (5)

Lecture, four hours; discussion, one hour. Introduction to fields of mass communication and interpersonal communication. Study of modes, media, and effects of mass communication, interpersonal processes, and communication theory. Letter grading.

15A. Production of Multimedia Software. (4)

Lecture, three hours; laboratory, one hour. Description of what goes into multimedia software program; discussion of different platforms (PC, Mac, network computers, servers, and transmitters) and distribution means (CD-ROM, DVD-ROM, Internet), content organization and layout, data structure and management; and overall planning for prototype and final product. P/NP or letter grading.

M70. Origin of Language. (5)

(Same as German M70 and Indo-European Studies M70.) Lecture, three hours; discussion, one hour. Theoretical and methodological issues surrounding origin of language. Topics include evolutionary theory, evolution of man, how language is organized in brain, and science of language, including physiology of speech, phonetics, and comparative reconstruction. Letter grading.

88. Sophomore Seminars: Communication Studies. (4)

Seminar, three hours. Limited to maximum of 20 lower division students. Readings and discussions designed to introduce students to current research in discipline. Culminating project may be required. P/NP or letter grading.

Upper Division Courses

100. Communication Theory. (4) Lecture, four hours. Prerequisite: course 10 or Linguistics 1 or Sociology 1 or Psychology 10. Analysis of fundamental nature of human communication; its physical, linguistic, psychological, and sociological bases. Study of theoretical models explicating process and constituents of communicative act. P/NP or letter grading.

101. Freedom of Communication. (4) Lecture, four hours. Analysis of legal, political, and philosophical issues entailed in rights of free expression, access to audience, and access to information. Study of court decisions governing freedom of communication in U.S. P/NP or letter grading.

102. Principles of Argumentation. (4) (Formerly numbered Speech 107.) Lecture, four hours. Analysis of propositions, tests of evidence, briefing. Study of hindrances to clear thinking, ambiguity of terms, and prejudices. Critical analysis of selected argumentative speeches. P/NP or letter grading.

103A-103B. Forensics. (2-2) (Formerly numbered Speech 181A-181B.) Lecture, two hours. Participation in on-campus and intercollegiate forensics activities, including exposure to fundamentals of competitive forensic events. Students practice public address, interpretation of literature, debate, oratory, and extemporaneous speaking and engage in independent research and analysis. Each course may be repeated once for credit. P/NP or letter grading. **103A.** Basic preparation; **103B.** Advanced practicum in speech.

104. Analysis and Briefing. (2) (Formerly numbered Speech 182.) Lecture, two hours. Intensive study of selected political or social issues, preparation of bibliography, analysis and evaluation of issues and arguments. May be repeated once for credit. P/NP or letter grading.

111. Conflict and Communication. (4) Seminar, three hours. Analysis of when and why conflict is prevalent in daily lives (including mass media) and how communication affects reactions to and consequences of conflict. Conflict is part of our evolutionary heritage. How well we handle various conflicts affects, to great degree, our success or failure wherever we interact with others, including intimate relations, school, and workplace. P/NP or letter grading.

112. Current Problems in Evolution and Communication. (4) Seminar, three hours. Requisite: course 118 or 120 or 126. Examination of contemporary issues in evolutionary communication research. Topics include design of communication systems, animal signaling, social communication, and speech production and perception. P/NP or letter grading.

113. Nonverbal Communication and Body Language. (4) Lecture, three hours. Examination of how various forms of nonverbal communication convey meaningful information to perceivers, with focus on both production and perception of multiple communication formats (e.g., affect expression of face and body, gesture, and kinematics), with strong emphasis on body language. Readings from variety of related fields. P/NP or letter grading.

114. Understanding Relationships. (4) Lecture, four hours. Explanation of types of communication that occur in close relationships, especially romantic relationships. In-depth coverage of variety of relationship topics, including intimacy, stages of intimate relationships, why we choose to get involved with some people as opposed to others, flirting, and self-disclosure. P/NP or letter grading.

115. Dyadic Communication and Interpersonal Relationships. (4) Lecture, three hours. Developmental approach to study of communication in dyadic relationships. Analysis of differences in stages of relationships in terms of communication rules and verbal and nonverbal messages. P/NP or letter grading.

116. Communication and Conflict in Couples and Families. (4) (Formerly numbered M116.) Lecture, three hours. Examination of (1) dysfunctional communication and conflict in couples and families and (2) relationship of these processes to individual psychopathology, marital discord, and family disruption (e.g., separation and divorce). P/NP or letter grading.

M117. Negotiation. (4) (Formerly numbered 117.) (Same as Labor and Workplace Studies M117.) Lecture, four hours. Art and science of negotiation in securing agreements between independent parties. Theory and practice that underlies successful negotiation. Experiential course in which students learn broad array of negotiation skills, including identifying one's own (and others') communication style, identifying and incorporating components of successful negotiation, and resolving conflict between parties. Letter grading.

118. Language and Music. (4) Lecture, three hours. Cognitive science exploration of structure and evolution of language and music and their relationships to communication, cognition, and culture. P/NP or letter grading.

119. Voice and Its Perception. (4) Lecture, four hours. Focus on how human voice conveys information about identity of speakers, physical characteristics, personality, and emotional state, and on how listeners utilize this information to make judgments about speakers. Letter grading.

120. Group Communication. (4) Lecture, four hours. Examination of group communication from perspectives of evolutionary psychology, communications, and psycholinguistics. Topics include evolution of cooperation, ingroup and outgroup dynamics, gossip, music improvisation, and conversational behavior. P/NP or letter grading.

121. Talk and Mass Communication. (4) Lecture, three hours. In recent years there has been sea change in broadcast news and public affairs programming. News was once packaged and presented to audiences in form of scripted narrative or story, but increasingly news is organized around spontaneous interactional encounters between some combination of journalists, public figures, and ordinary citizens. Examination of interactional forms, with emphasis on news interviews, presidential press conferences, and political speeches before live audiences, from standpoint of their historical development and consequences for journalism, political communication, and public sphere. Primary focus on inner workings of each form of talk—social norms and practices that organize participation and that distinguish forms of broadcast talk from one another and from ordinary conversation. Letter grading.

122. Promoting Dialogue between Diverse Worlds. (4) Lecture, three hours. Exploration of issues related to management of conflict between major areas of world, with focus on historical background, perception gaps, and political context. Communication approaches based on nonviolence and management of moral conflict offered as alternatives to clash of civilizations. Letter grading.

M123W. Talk and Body. (5) (Formerly numbered M123.) (Same as Anthropology M148W and Applied Linguistics M161W.) Lecture, four hours; discussion, one hour. Enforced prerequisite: English Composition 3 or 3H or English as a Second Language 36. Relationship between language and human body raises host of interesting topics. New approaches to phenomena such as embodiment become possible when body is analyzed, not as isolated entity, but as visible agent whose talk and action are lodged within both processes of human interaction and rich settings where people pursue courses of action that count in their lives. Satisfies Writing II requirement. Letter grading.

M124. Psychology of Language and Gender. (4) (Same as Women's Studies M124.) Lecture, four hours. Examination of current topics at intersection of gender and language. Topics include sex differentiation in language cross-culturally; sex bias in lexicon and usage; sex differences in lexicon, syntax, phonology, and nonverbal behavior; development of sex-differentiated language in children; women's and men's language in various racial/ethnic/class/sexual preference groups; and conversational interaction. Letter grading.

M125. Talk and Social Institutions. (4) (Same as Sociology CM125.) Lecture, four hours; discussion, one hour. Designed for juniors/seniors. Practices of communication and social interaction in number of major institutional sites in contemporary society. Setting varies but may include emergency services, police and courts, medicine, news interviews, and political oratory. P/NP or letter grading.

126. Evolution of Interpersonal Communication. (4) Lecture, four hours. Examination of current issues in interpersonal communication from perspectives of evolutionary psychology and biology. Topics include coevolution of signaler and receiver adaptations, nonverbal communication, courtship behavior, miscommunication between sexes, implied language use, and deception. Letter grading.

M127. Animal Communication. (5) (Same as Anthropology M127 and Applied Linguistics CM127.) Lecture, four hours. Designed for Anthropology, Applied Linguistics, and Communication Studies majors. Evolution, functions, design, and diversity of animal communication systems such as bird song, dolphin calls, whale song, primate social signals, and human language. Letter grading.

128. Entertainment as Implicit Pedagogy. (4) Lecture, three hours. Entertainment is significant component of both interpersonal and mass communication. Examination of evolutionary history, cognitive mechanisms, and social dimensions of play and entertainment, as well as their possible pedagogical effects. Letter grading.

129. Gaming Mind. (4) Lecture, three hours. Exploration of various aspects of online computer games that are becoming increasingly popular and technically sophisticated, with focus on what people learn from games, how they learn it, and whether learning is potentially useful. Letter grading.

130. Cultural Factors in Interpersonal Communication. (4) Lecture, three hours. Study of cultural factors as they affect quality and processes of interpersonal communication; exercises in participation, analysis, and criticism of interethnic and interracial communications in small group configuration. P/NP or letter grading.

131. Culture versus Media? (4) Lecture, three hours. Interpretation of meaning of cultural texts, analysis of representation of particular groups, and consideration of how audiences provide their own meanings and uses to such texts, with focus on media in relation to issues of globalization, consumption, class, race, gender, youth, and sexuality. Letter grading.

132. Multicultural Television. (4) Lecture, four hours. Critical evaluation of television programming and scholarly research of new developments in television. Application of research findings by students to real-world contexts in course discussions, papers, and presentations. Letter grading.

133. Decoding Media Strategies. (4) Lecture, three hours. Today's mass media are thriving business, central part of cultural identity, and vital component of democracy. How do these different and often conflicting functions determine content of mass media? Examination of psychological dynamics of advertising, nature of entertainment and mass culture, practice of propaganda, and changing patterns of media ownership. Assessment of impact of mass media on individuals and social institutions. Letter grading.

M135. Narrative in Mass Communication. (6) (Same as Honors Collegium M135.) Seminar, four hours. Examination of narrative as primary function of mass media, beginning with social, psychological, cultural, and rhetorical functions of storytelling and basic elements of narrative, then applying these to study of film, television, and print media. P/NP or letter grading.

139. Speech and Law: Application of Courtroom Communication Principles. (4) Lecture, three hours. Study of theory and practice of effective communication while modeling dynamics of real-life courtroom proceedings. Critical analysis, oral argument, and debate related to issues of morality and legal justice arising in famous criminal trials. Letter grading.

140. Theory of Persuasive Communication. (4) Lecture, four hours. Dynamics of communication designed to influence human conduct; analysis of structure of persuasive discourse; integration of theoretical materials from relevant disciplines of humanities and social sciences. Letter grading.

141. Films of Persuasion: Social and Political Advocacy in Mass Society. (4) Lecture, four hours. Films often provide commentary about public issues. Examination of how films communicate to large audiences about history, society, and politics. Critical evaluation of these works to understand power and limitations of films as social persuasion. Letter grading.

142. Rhetorical Theory. (4) Lecture, four hours. Requisite: course 100. Survey of major classical and neo-classical treatises on rhetoric. Analysis of theories of Plato, Aristotle, Cicero, Quintilian, St. Augustine, Blair, Whately, Campbell, and other leading works in theory of rhetoric. P/NP or letter grading.

143. Rhetoric of Popular Culture. (4) Lecture, three hours. Rhetorical approach to study of U.S. popular culture. Examination, both at theoretical level and through specific case studies, of ways in which popular cultural texts perform rhetorically to influence political and social struggles shaping everyday life. How do particular artifacts or communicative texts constitute source for (re)negotiation of cultural meanings as well as greater understanding of ways language functions as vehicle for human action. Letter grading.

M144A-M144B. Conversational Structures I, II. (4-4) (Same as Sociology M124A-M124B.) Lecture, three hours; discussion, one hour. P/NP or letter grading. **M144A.** Introduction to some structures that are employed in organization of conversational interaction, such as turn-taking organization, organization of repair, and some basic sequence structures with limited expansions. **M144B.** Requisite: course M144A. Consideration of some more expanded sequence structures, story structures, topical sequences, and overall structural organization of single conversations.

146. Evolution of Mass Media Images. (5) Lecture, four hours; discussion/laboratory, one hour. Analysis of evolutionary psychology as basis for images selected by media portraying women and/or minorities in entertainment, advertising, and informational communication. Letter grading.

M147. Sociology of Mass Communication. (4) (Same as Sociology M176.) Lecture, four hours; discussion, one hour (when scheduled). Studies in relationship between mass communication and social organization. Topics include history and organization of major media institutions, social forces that shape production of mass media news and entertainment, selected studies in media content, and effects of media on society. P/NP or letter grading.

148. Marketing, Advertising, and Human Nature. (5) Seminar, four hours. Marketing, advertising, and consumer behavior from viewpoint of evolutionary psychology and biology, including analysis of motives and patterns of consumption, current marketing strategies and marketing myths, and contents and effectiveness of advertising. Letter grading.

M149. Media: Gender, Race, Class, and Sexuality. (5) (Same as Labor and Workplace Studies M149 and Women's Studies M149.) Lecture, four hours; activity, one hour. Limited to junior/senior Communication Studies and Women's Studies majors and Labor and Workplace Studies minors. Examination of manner in which media culture induces people to perceive various dominant and dominated and/or colonized groups of people. Ways in which women, gay, lesbian, bisexual, transgendered, racial, and ethnic marginalized peoples, class relations, and other subaltern or subordinated groups are presented and often misrepresented in media. Investigation and employment of practical applications of communications and feminist theories for understanding ideological nature of stereotyping and politics of representation through use of media, guest presentations, lectures, class discussions, and readings. Introduction to theory and practice of cultural studies. Letter grading.

150. Methodologies in Communication Research. (5) Lecture, four hours; discussion, one hour. Requisites: Statistics 10 or 11, and 12. Limited to Communication Studies majors. Critical studies of quantitative and qualitative methodologies in communication research. Letter grading.

151. Computer-Mediated Communication. (4) Lecture, four hours. Examination of how computer technology, particularly Internet, has influenced patterns of human communication. History and distinctiveness of computer-mediated communication (CMC). CMC's influence on modern economic, political, and social interaction. Letter grading.

152. Analysis of Communication Effects. (4) Lecture, four hours. Survey of experimental and field research on effects of communications. Study of source, message, and environmental factors affecting audience response. P/NP or letter grading.

M153. Media and Aggression against Women. (4) (Same as Women's Studies M153.) Lecture, four hours. Social scientific study of intersection between mass media and men's aggression against women. Particular consideration of sexual aggression, pornography, and characteristics of aggressive men. Analysis of interaction between "nature and nurture." Letter grading.

154. Social Communication and New Technology. (4) Lecture, four hours. Internet's digital core was designed for military command. Yet emerging network was gradually co-opted to perform communicative functions such as gossip, dating, news, entertain-

ment, and trade. Exploration of history, social effects, and possible futures of digital communication. Letter grading.

155. Social Aspects of New Electronic Media: Introduction to Information Society. (4) Lecture, three hours. Examination of evolution and social implications of new information and communication technologies (ICTs). Review of development of various technologies and consideration of major social issues and changes associated with their use. Letter grading.

156. Social Networking. (4) Lecture, three hours. Investigation of how new online social networks have facilitated interpersonal interactions for knowledge sharing, romance, business, politics, and entertainment. Critical investigation of current popular social networking websites (e.g., Facebook, MySpace, Friendster, You Tube) through social network analysis and other social science research methods. P/NP or letter grading.

158. Evolution of Communication Technology. (4) Lecture, four hours. Study of role assigned to technology in theories of communication. Examination of current information age and advance in communication technology throughout history. Survey of origins and societal implications of major development, starting with emergence of speech itself. Letter grading.

M159. Pornography and Evolution. (4) (Same as Women's Studies M159.) Lecture, three hours. Discussion of theories and research on why pornography exists and its effects. Use of topic to illustrate value of evolutionary theory to social sciences generally. Letter grading.

160. Political Communication. (4) Lecture, four hours; discussion, one hour. Study of nature and function of communication in political sphere; analysis of contemporary and historical communications within established political institutions; state papers; deliberative discourses; electoral campaigns. Letter grading.

M161. Electoral Politics: Mass Media and Elections. (4) (Same as Political Science M141D.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Assessment of manner in which Americans' political beliefs, choices, and actions are influenced by mass media presentations, particularly during election campaigns. Topics include processes of political attitude formation and change, different types of media "effects," and role of media in American political process. P/NP or letter grading.

162. Presidential Communication. (4) Lecture, three hours. Examination of historical evolution of presidential communication environment, resources, and strategies, as well as how presidential campaign communication has evolved over time and implications for how presidents govern. Letter grading.

163. Public Diplomacy: Communicating U.S. Ideas to Foreign Citizenry. (4) Seminar, three hours. Requisite: course 179. Exploration of relationship of communications techniques, power, and principles in connection with U.S. efforts to project ideas to foreign publics in 20th and 21st centuries. Discussion of intersection of foreign relations, public relations, journalism, and other forms of communication. Letter grading.

M165. Agitational Communication. (4) (Formerly numbered 165.) (Same as Labor and Workplace Studies M175.) Lecture, four hours; discussion, one hour (when scheduled). Theory of agitation; agitation as force for change in existing institutions and policies in democratic society. Intensive study of selected agitational movements and technique and content of their communications. Letter grading.

166. Communicative Dynamics in Film and Television Production. (4) Lecture, four hours. Identification of how motivation and creativity interact with business interest, research, and policies in producing entertainment for media market. Letter grading.

167. Sex, Politics, and Race: Free Speech on Campus. (4) Lecture, three hours. Focus on concept of freedom of expression on campus during postsecondary education. How First Amendment, case law, and

federal and state statutes affect students' and teachers' abilities to speak on and off campus. Discussion of harassment and campus speech codes, campus demonstrations, student publications, student conduct regulations, and restrictions on displays of art and academic freedom. P/NP or letter grading.

168. Free Speech in Advertising. (4) Lecture, three hours. Exploration of First Amendment and commercial speech within context of product and service advertising (e.g., vice products such as tobacco, alcohol, illegal drugs, gambling; pharmaceutical drugs; and political advertisements). Examination of when, where, and how (time/place/manner) restrictions imposed on advertising and commercial speech, with specific reference to shopping malls, news tabloid racks, and billboards, among other places. P/NP or letter grading.

M169. Critical Vision: History of Art as Social and Political Commentary. (5) (Same as Honors Collegium M179.) Seminar, three hours. Study of tradition of visual arts (painting, graphic art, photography, sculpture) as vehicles for social and political commentary. P/NP or letter grading.

170. Legal Communication. (4) Lecture, four hours. Study of trial and appellate processes as systems of communication. Analysis of elements of juridical process as they affect quality of communication content. Study of rules of evidence, jury behavior, and structure of legal discourse. Letter grading.

171. Theories of Freedom of Speech and Press. (4) Lecture, three hours. Exploration of relationship between freedoms of speech and press and values of liberty, self-realization, self-government, truth, dignity, respect, justice, equality, association, and community. Study of significance of these values examined in connection with issues such as obscenity, defamation, access to media, and control of commercial, corporate, and government speech. P/NP or letter grading.

M172. Free Speech in Workplace. (4) (Formerly numbered 172.) (Same as Labor and Workplace Studies M172.) Lecture, three hours. Focus on concept of freedom of expression in workplace and how First Amendment, case law, and federal and state statutes affect one's ability to speak at work. Conflict between discrimination law and ability to speak freely at work as well as meaning and limits of academic freedom. P/NP or letter grading.

173. Communicating Complex Policy. (4) Lecture, three hours. Various media offer different comparative advantages/disadvantages for transmission of messages. Specific kinds of print, video, and new media offer opportunities and problems when content is complex and/or scholarly. Development of media-complexity typologies. Exploration of scholarly works of famed philosophers, sociologists, and communication theorists. Letter grading.

174. Trial by Jury: Communication Perspective. (4) Lecture, four hours. Study of American jury trial system as communication process. Examination of impact of courtroom television, paid jury consultants, and celebrity prosecutions on system's communication dynamics and search for truth. Review of communication research and empirical data in effort to decide whether American jury system places too much emphasis on winning and not enough on seeking truth. Letter grading.

175. Criticism and Public Arts. (4) Lecture, four hours; discussion, one hour (when scheduled). Introduction to methods and problems of criticism in public arts. Study of several types of critical methods: formalistic, analogue, pragmatic, and aesthetic criticism. Topics include definition of art and criticism, aesthetic media, genre and resources of film, television, theater, and public discourse, varieties of critical method, problems of critical judgment. Letter grading.

M176. Visual Communication and Social Advocacy. (4) (Formerly numbered 176.) (Same as Labor and Workplace Studies M176.) Lecture, four hours. Visual communication reaches diverse audiences in communicating major social and political topics. Cartoons, posters, murals, and documentary photogra-

phy have had powerful world impact. Survey of all four genres of visual communications as features of modern mass media. Letter grading.

177. Libel and Freedom of Expression. (4) Lecture, four hours. Intensive study of law of defamation and its relationship to free flow of information in democracy. Examination of rationale, scope, and effects of libel laws. Topics include application of libel laws to public official, public figure, and private plaintiffs and media and nonmedia defendants; group libel, privileged libel, and libelous fiction. Letter grading.

178. Propaganda and Media. (4) Lecture, three hours. Examination of nature of propaganda, institutional structure of American media, and relationship between propaganda and American news media. History of propaganda in America from World War I era forward, competing theories of democracy and media, and role of corporations in propaganda and news. Letter grading.

179. Images of U.S. (4) Lecture, four hours. Awareness of international role of U.S. necessitates clear understanding of way our nation is perceived by others. Exploration of roots of U.S. images in minds of people abroad. Analysis of influences that contribute to images and ways in which images affect practical matters. P/NP or letter grading.

180. Politics of Censorship. (4) Lecture, two hours; simulation teaching, three hours. Prerequisite: course 101. Examination of process and substance of debates over government and private censorship by having students become active participants in term-long simulated battle over current issue such as book censorship, pornography, or UNESCO's proposed "New World Information Order." P/NP or letter grading.

181. Evolutionary Psychology and Interpersonal Communication. (2) Seminar, three hours. Designed to bring together students undertaking supervised tutorial research in seminar setting to discuss their work with faculty members. Hands-on course in which students learn to conduct empirical research in communication and evolutionary psychology. Readings, discussions, and average of seven hours per week of research (designing experiment protocols, collecting and processing data, interpreting results). P/NP grading.

182. Nonverbal Communication in Architecture. (4) Lecture, four hours. Study of how elements of design and style of various buildings in architectural history send messages to viewers and users of such buildings. Letter grading.

183. Asia Media Systems: Introduction. (4) Lecture, four hours. Survey of news media of Asia Pacific region. Political, economic, cultural, and religious history drives each system. Survey of region's leading countries and comparison of media systems to each other. Letter grading.

184. Advanced Asia Media Systems: Laboratory. (4) Lecture, three hours; laboratory, one hour. Survey and comparative analysis of news media Web pages of Asian Pacific, examined in Social Sciences Computing Laboratory, using media richness, content analysis, and political, cultural, and economic perspective. Letter grading.

185. Field Studies in Communication. (2 to 4) Lecture, two hours. Designed for juniors/seniors. Fieldwork in communication. Students participate in two-hour seminar sessions and spend seven hours in approved community settings each week for each 2 units of credit. May be taken for maximum of 4 units per term. P/NP grading.

186. Mass Media, Public Opinion, and Foreign Policy. (4) Lecture, four hours. Investigation of various means through which mass media and public opinion influence foreign policy. Development of coherent view of interaction between media, public opinion, and politicians with respect to foreign affairs. Letter grading.

187. Ethical and Policy Issues in Institutions of Mass Communication. (4) Lecture, three hours. Intensive examination of ethical and policy issues arising from interaction of media institutions (print, film, broadcasting, and new technologies) and societal in-

stitutions (Congress, federal agencies, courts, Presidency, schools, churches, political action groups, advertisers, and audiences). P/NP or letter grading.

188A. Variable Topics in Mass Communication. (4) (Formerly numbered 107A.) Lecture, three hours. Variable topics; consult *Schedule of Classes* for topics to be offered in specific term. May be repeated for credit with topic change. Letter grading.

188B. Variable Topics in Interpersonal Communication. (4) (Formerly numbered 107B.) Lecture, three hours. Variable topics; consult *Schedule of Classes* for topics to be offered in specific term. May be repeated for credit with topic change. Letter grading.

191A. Variable Topics Research Seminars: Mass Communication. (4) Seminar, three hours. Research seminars on selected topics in mass communication. Reading, discussion, and development of culminating project. May be repeated for credit with topic change. P/NP or letter grading.

191B. Variable Topics Research Seminars: Interpersonal Communication. (4) Seminar, three hours. Research seminars on selected topics in interpersonal communication. Reading, discussion, and development of culminating project. May be repeated for credit with topic change. P/NP or letter grading.

194. Research Group Seminars: Communication Studies. (2) Seminar, two hours. Designed for undergraduate students who are part of research group. Discussion of research methods and current literature in field or of research of faculty members or students. May be repeated for credit. P/NP grading.

197. Individual Studies in Communication Studies. (2 to 4) Tutorial, one hour. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject area required. May be repeated for credit. Individual contract required. P/NP or letter grading.

198A-198B-198C. Honors Research in Communication Studies. (4-4-4) Tutorial, three hours. Limited to junior/senior majors. May be repeated for credit. Individual contract required. Letter grading. **198A.** Requisites: courses 10, 150. Development of comprehensive research project under direct supervision of faculty member. **198B.** Requisite: course 198A. Continuation of work initiated in course 198A. Presentation of summary of data gathered and relevant progress to supervising faculty member. **198C.** Requisite: course 198B. Completion of research developed in courses 198A, 198B. Presentation of honors project to supervising faculty member.

199. Directed Research or Senior Project in Communication Studies. (2 to 4) Tutorial, one hour. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

COMMUNITY HEALTH SCIENCES

School of Public Health

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Steven P. Wallace, Ph.D., *Vice Chair*

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E. Richard Brown, Ph.D.
Elizabeth A. Frankenberg, Ph.D.
Osman M. Galal, M.D., Ph.D.
Deborah C. Gliik, Sc.D.
Michael S. Goldstein, Ph.D.
Kimberly D. Gregory, M.D., M.P.H., *in Residence*
Gail G. Harrison, Ph.D.
David Heber, M.D., Ph.D.
Martin Y. Iguchi, Ph.D.
Marjorie Kagawa-Singer, Ph.D., M.A., M.N., R.N.
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Joel D. Kopple, M.D., *in Residence*
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Anne R. Pebley, Ph.D. (*Fred H. Bixby Professor of Population Policy*)
Michael G. Ross, M.D., M.P.H.
Mary Jane Rotheram-Borus, Ph.D., *in Residence*
(*Dena Bat-Yaacov Endowed Professor of Childhood Psychiatry and Biobehavioral Sciences*)
Judith M. Siegel, Ph.D., M.S.Hyg.
Dawn M. Upchurch, Ph.D.
Steven P. Wallace, Ph.D.

Professors Emeriti

Emil Berkanovic, Ph.D.
Isabelle F. Hunt, Dr.P.H., R.D.
Snehendu B. Kar, Dr.P.H., M.Sc.
Virginia C. Li, Ph.D., M.P.H.
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Charlotte G. Neumann, M.D., M.P.H.
Marian E. Swendseid, Ph.D.

Associate Professors

Gilbert C. Gee, Ph.D.
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Kimberley I. Shoaf, Dr.P.H., *in Residence*
Wendelin M. Slusser, M.D.
May C. Wang, Dr.P.H., R.D., *in Residence*

Assistant Professors

Chandra L. Ford, Ph.D.
Jessica D. Gipson, Ph.D., M.P.H.
Ondine S. von Ehrenstein, Ph.D., M.P.H., M.S.

Lecturers

Tiffani Brown Garnett, M.P.H.
Jill L. DeJager, M.P.H., R.D.
Vanessa Luke, M.A.
Kristen McKinney, Ph.D.
Rena Orenstein, M.P.H.
Pamela L. Viele, Ph.D., M.P.H.

Adjunct Professors

Daniel H. Ershoff, Dr.P.H.
Ronald J. Halbert, M.D.
Steven J. Rottman, M.D.
Samuel J. Stratton, M.D., M.P.H.

Adjunct Associate Professors

Carol L. Archie, M.D.
Helen M. Du Plessis, M.D., M.P.H.
Marion Taylor Baer, Ph.D., R.D.
Diana M. Bontá, Dr.P.H., R.N.
Michael L. Prelip, D.P.A., M.P.H., C.H.E.S.
Valentine M. Villa, Ph.D.

Adjunct Assistant Professors

Alina H. Dorian, Ph.D.
Janet C. Frank, Dr.P.H.
Dena R. Herman, M.P.H., Ph.D., R.D.
Carolyn A. Mendez-Luck, Ph.D.
Bonnie Taub, Ph.D.
Paula A. Tavrow, Ph.D.

Field Program Supervisor

Michael L. Prelip, D.P.A., M.P.H., C.H.E.S.

Scope and Objectives

The Department of Community Health Sciences focuses on the determinants of health within the context of the social structure, community, healthcare systems, and family units. Of particular interest is how health-related behaviors of individuals are influenced by and interact with conditions in the social, cultural, physical,

and biological environment to influence health status, with particular emphasis on identifying, evaluating, and discouraging health-damaging behaviors and facilitating health-promoting behaviors. The curriculum seeks to integrate basic and applied public health theories and methods in applying them to real problems of human populations. Assessment, planning, and evaluation are common themes in the department's educational programs.

The department offers both schoolwide professional (M.P.H. and Dr.P.H.) and academic (M.S. and Ph.D.) degree programs. Graduates of the professional programs generally assume positions in the planning, administration, and evaluation of public health programs and policies, both in the U.S. and abroad, that have as their objective the maintenance and improvement of the health of individuals, families, communities, and populations. Graduates of the doctoral programs assume teaching, research, and managerial positions in a wide variety of settings, including universities, government agencies, nongovernmental organizations, international health agencies, and research centers.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Community Health Sciences offers Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Public Health.

Community Health Sciences

Lower Division Courses

60. Intergroup Dialogue: Peer Dialogue. (2) Seminar, two hours. Discussion on issues of difference, conflict, and community to facilitate understanding between social/cultural groups. Student participation in semi-structured face-to-face meetings with students from other social identity groups to learn from each others' perspectives, read and discuss relevant reading material, and explore their own and other groups' experiences in various social and institutional contexts. Exploration of ways of taking action to create change and bridge differences at interpersonal and social/community levels. P/NP or letter grading.

90. Aging Frontier: Public Health Perspective. (4) Lecture, three hours; discussion, one hour. Introduction to gerontology from public health perspective, emphasizing prevention of illness and promotion of healthy aging. Special attention to health and aging among women and racial/ethnic minorities. Letter grading.

91. Peer Health Counselor Training. (4) Lecture, four hours. Limited to students in Peer Health Counselor Program. Analysis of student healthcare issues as related to campus healthcare delivery system and to healthcare consumer. Identification of health needs,

determination of appropriate resources, delivery of preventive and self-care education, and delineation of peer health counselor's role. P/NP or letter grading.

Upper Division Courses

100. Introduction to Community Health Sciences. (4) Lecture, three hours; discussion, one hour. Development of broad appreciation of community, cultural, developmental, and psychosocial factors as they affect health, health-related behavior, and implications for public health. Review of theories, models, and modalities of interventions and policies for health promotion and disease prevention. Letter grading.

130. Nutrition and Health. (4) Lecture, three hours; laboratory, one hour. Preparation: one biology course, one chemistry course. Basic and clinical nutrition theory and practice for students in health sciences curricula. P/NP or letter grading.

132. Health, Disease, and Health Services in Latin America. (4) Lecture, four hours. Introduction to health, disease, and health services in Latin America, with emphasis on epidemiology, health administration, medical anthropology, and nutrition. P/NP or letter grading.

M140. Health Issues for Asian Americans and Pacific Islanders: Myth or Model? (4) (Same as Asian American Studies M129.) Lecture, three hours; fieldwork, one hour. Introductory overview of mental and physical health issues of Asian Americans and Pacific Islanders; identification of gaps in health status indicators and barriers to both care delivery and research for these populations. Letter grading.

160. Intergroup Dialogue: Theory and Practice of Peer Facilitation. (4) Lecture, four hours. Recommended prerequisite: course 60. Discussion on issues of difference, conflict, and community to facilitate understanding between social/cultural groups. Peer facilitator training course to develop understanding of theoretical and research foundations of intergroup dialogue, peer-facilitated discussions involving relationship building (and coalition building) through thoughtful engagement around different social identity issues. Study of variety of techniques, tools, and strategies to support students in their capacity to implement sustained dialogues with students from other social identity groups. Letter grading.

161. Intergroup Dialogue: Training Practicum. (4) Seminar, four hours. Enforced prerequisite: course 160. Application and further development of content and skills learned in course 160. Co-facilitation of weekly dialogues with students on specific identity theme and further development of knowledge and techniques in areas of group dynamics, conflict intervention, communication and community, and mental health effects of structural inequality as they relate to discussions of social justice and multicultural issues. Readings in these areas and discussions of ongoing dialogue dynamics. Letter grading.

CM170. Improving Worker Health: Social Movements, Policy Debates, and Public Health. (4) (Same as Labor and Workplace Studies M170.) Lecture, three hours; fieldwork, two hours. Examination of intersection between work, health, and environment, analysis of social causes of health disparities, investigation of historical trends and social movements, interpretation of current policy debates, and development of innovative interventions. Concurrently scheduled with course CM470. P/NP or letter grading.

179. Life Skills for College Students. (4) Seminar, four hours. Multidisciplinary exploration of student development in undergraduate experience, with focus on processes of identity formation and emotional and social development. Emphasis on variability associated with gender, race, ethnicity, culture, and sexual orientation. Testing of real-life relevance of theory and research. P/NP or letter grading.

180. Field Studies in Cancer Control. (4) Lecture, two hours; discussion, one hour; fieldwork, four hours. Requisite: Molecular, Cell, and Developmental Biology 50. Designed for juniors/seniors. Opportunity for students to become involved in cancer control through classroom discussion, lectures, service in field, and

guided research. Biology of cancer, its prevention, early detection, treatment, and rehabilitation. Letter grading.

181. Campus/Community Health and Wellness Promotion: From Theory to Practice. (4) Lecture, two hours; discussion, two hours. Limited to juniors/seniors. Theory, training, and experience in health/wellness promotion and health/wellness education in selected campus communities. Participation in supervised small-group program planning project. Letter grading.

187A-187B. Introduction to Interventions for At-Risk Populations. (4-4) Lecture, three hours; committee meetings/community service, two to six hours. Course 187A is requisite to 187B. Designed for juniors/seniors. Health and social needs/services from primarily public health perspective, drawing on related academic/professional disciplines. Community-based service learning strategy used to enhance knowledge of concepts covered. As part of service portion, students trained as caseworkers and committee members. Letter grading.

195. Community or Corporate Internships in Community Health Sciences. (4) Tutorial, six hours. Limited to juniors/seniors. Internship in supervised setting in community agency or business. Further supervision provided by public health organization for which students do internship. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for credit. Individual contract with supervising placement sponsor required. P/NP or letter grading.

197. Individual Studies in Community Health Sciences. (2 to 4) Tutorial, four hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200. Global Health Problems. (4) Lecture, two hours; discussion, two hours. Overview of health profile of world in the century. Global health problems and methods by which they have been dealt in context of Alma Ata goal of health for all by year 2000. Letter grading.

205. Immigrant Health. (4) Lecture, two hours; discussion, one hour. Limited to graduate students. Overview of key topics in public health for documented and undocumented immigrants and refugees in U.S. Demographics, health status, behavioral risk factors, and social determinants, health and human rights, and access to healthcare and prevention services. Analysis of public policy across topics. Builds skills necessary to develop integrated approach to health of immigrant populations. Letter grading.

M208. Introduction to Demographic Methods. (4) (Same as Biostatistics M208, Economics M208, and Sociology M213A.) Lecture, four hours. Preparation: one introductory statistics course. Introduction to methods of demographic analysis. Topics include demographic rates, standardization, decomposition of differences, life tables, survival analysis, cohort analysis, birth interval analysis, models of population growth, stable populations, population projection, and demographic data sources. Letter grading.

210. Community Health Sciences. (4) Lecture, three hours. Preparation: one social sciences course. Basic concepts, relationships, and policy issues in field of community health, variability in definitions of health and illness, correlates of health and illness behavior, impact of social and community structure on health status, major contemporary approaches to health promotion and health education at community level. Use of comparative international perspective. Letter grading.

211A-211B. Program Planning, Research, and Evaluation in Community Health Sciences. (4-4)

Lecture, three hours; discussion, one hour; outside assignments, eight hours. Course 211A is requisite to 211B. Development, planning, and administration of public health programs in community settings. Introduction to range of research methods and techniques used in designing and conducting health research, with particular emphasis on evaluation of community-based public health programs. Course organized into three modules. Letter grading. **211A.** Requisite: course 210; **211B.** Requisites: courses 210, 211A, and Biostatistics 100A or Epidemiology 100.

212. Advanced Social Research Methods in Health. (4) Lecture, four hours; laboratory, two hours; outside assignments, eight hours. Requisites: courses 211A, 211B, Biostatistics 100B, 406. Problems of health survey design and data collection; measurement issues in data analysis and interpretation; use of computer for analysis of large-scale survey data using various statistical techniques. Letter grading.

213. Research in Community and Patient Health Education. (4) Lecture, three hours; discussion, two hours. Requisite: course 210. Application of conceptual, theoretical, and evaluation skills to community-based health education risk-reduction programs. Computer applications, data management, and research methodologies taught through microcomputer and mainframe computer management and analysis of program databases. Letter grading.

214. Issues in Program Evaluation. (4) Discussion, three hours; reading and research paper, one hour. Requisite: course 212. Advanced seminar that explores problems of planning and implementing evaluation research in context of local demonstration projects. Letter grading.

M216. Qualitative Research Methodology. (4) (Same as Anthropology M284.) Discussion, three hours; laboratory, one hour. Intensive seminar/field course in qualitative research methodology. Emphasis on using qualitative methods and techniques in research and evaluation related to healthcare. Letter grading.

M218. Questionnaire Design and Administration. (4) (Same as Epidemiology M218.) Lecture, four hours. Requisites: courses 211A and 211B, or Epidemiology 200B and 200C. Design, testing, field use, and administration of data collection instruments, with particular emphasis on questionnaires. Letter grading.

219. Theory-Based Data Analysis. (4) Seminar, three hours. Enforced requisites: Biostatistics 100A, 100B, 406. Translation of theory into data analytic plan, its application to real data, and interpretation of results obtained through multivariate analysis. Analysis of quantitative data using range of multivariate techniques, such as linear multiple regression and logistic regression. Analysis of theoretical problem using student quantitative data or public use data. Letter grading.

220. Racism and Public Health: Social Epidemiologic Approaches. (4) Seminar, two hours; discussion, one hour. Requisite: Biostatistics 100B. Integration of social epidemiologic methods and critical approaches to study of racial stratification and public health, with focus on (1) conceptualizing racism-related factors as social determinants of health, (2) building methodological competence for conducting research on racism as social determinant of health, and (3) developing critical self-consciousness to better understand how persons' racial- or racism-related perspectives and experiences might inform their research. Letter grading.

221. Introduction to Sociocultural Aspects of Health. (4) Lecture, three hours; discussion, one hour. Examination of how social stratification and culture relate to health and health-related behavior. Consideration of four major status characteristics: age, ethnicity, gender, and socioeconomic status. Description of epidemiological patterns and discussion of social meaning of those four characteristics. Letter grading.

M222. Understanding Fertility: Theories and Methods. (4) (Same as Sociology M206.) Lecture, three hours. Preparation: one formal or social demography course. Requisite: Biostatistics 100A. Application of demographic theories and methods to describe fertility trends and differentials and social and proximate determinants of fertility, with emphasis on understanding key proximate determinants. For advanced students interested in population, demography of health, and social demography. Letter grading.

M223. Tobacco: Prevention, Use, and Public Policy. (4) (Same as Health Services CM221.) Lecture, four hours. Designed for juniors/seniors and graduate students. Study of tobacco use and its health consequences, including interplay of historical, biological, sociocultural, political, and economic forces with knowledge, attitudes, and behavior choices of individuals. Introduction to prevention interventions, cessation interventions, anti-tobacco efforts in U.S., and international trends in tobacco use. Letter grading.

224. Social Determinants of Nutrition and Health. (4) Lecture, three hours; discussion, one hour. Preparation: one basic nutrition course. Health promotion strategies aimed at reducing chronic disease risk through lifestyle changes have not been particularly successful in addressing needs of socioeconomically disadvantaged groups. Overview of literature supporting relationship between socioeconomic disadvantage and food-related health conditions such as obesity, diabetes, and osteoporosis. Critical examination of plausible pathways from perspectives of multidisciplinary (economics, nutrition, sociology, and more), with focus on linkages between social and physical environment (including built environment) and food equity/access; discussion of how food may be catalyst for improving social capital and health. Discussion of examples of local and international efforts to improve access to healthy foods and/or limit access to unhealthy foods. Exploration of methods for assessing social capital and food-related aspects of neighborhood environments. S/U or letter grading.

226. Women's Health and Well-Being. (4) Lecture, four hours. Limited to graduate students. Interdisciplinary perspective critically examining research on women's health. Overview of scientific inquiry and methods; gender roles; status attainment and medical sociology. Review of current data on women's health. Letter grading.

229. Policy and Public Health Approaches to Violence Prevention. (4) Lecture, four hours. How policies relate to violence and development of skills to transmit this knowledge. Examination of wide range of policy topics and how each might be associated with reduction/increase in violence/violent injury. Letter grading.

230. Family and Sexual Violence. (4) Lecture, three hours; community, three to four hours. Examination of rape, incest, and spouse and elder abuse. Presentation of definitions, causes, outcomes of research on family and sexual violence, as well as response of social service, medical, and criminal justice systems. Letter grading.

231. Maternal and Child Nutrition. (4) Lecture, four hours. Nutrition of mothers, infants, and children in countries at various levels of socioeconomic development; measures for prevention and treatment of protein/calorie malnutrition; relationship between nutrition and mental development; impact of ecological, socioeconomic, and cultural factors on nutrition, nutrition education, and service. Letter grading.

M232. Determinants of Health. (4) (Same as Health Services M242.) Lecture, three hours; discussion, one hour. Designed for graduate students. Critical analysis of models for what determines health and evidence for social, economic, environmental, genetic, health system, and other factors that influence health of populations and defined subgroups. Letter grading.

233. Hunger and Food Insecurity as Public Health Issues. (4) Lecture, three hours. Designed for graduate students. Public health aspects of hunger and food insecurity in historical and international perspectives,

including measurement and identification of vulnerability, prevention, and options for relieving acute food shortage. Letter grading.

M234. Obesity, Physical Activity, and Nutrition Seminar. (4) (Same as Health Services M255.) Seminar, three hours; outside study, one hour. Designed for graduate students. Multidisciplinary introduction at graduate level to epidemiology, physiology, and current state of preventive and therapeutic interventions for obesity in adults and children, including public health policy approaches to healthy nutrition and physical activity promotion. S/U or letter grading.

235. Influence of Social and Physical Environment on Racial Health Disparities. (4) Seminar, three hours. Preparation: at least one biostatistics or epidemiology course. Limited to graduate students. Examination of how community stressors and neighborhood resources may contribute to health disparities. Discussion of multiple factors that contribute to environmental injustice and their potential solutions. Do health disparities arise because minorities and low-income populations live in harmful environments? Is relationship between environment and health disparities merely one of potential exposure to chemical/physical hazards, or are there psychosocial mechanisms at community level that act above or beyond effects of physical environment? Letter grading.

236. Managing Drug Abuse from Public Health Perspective. (4) Lecture, four hours. Exploration of numerous areas of public health impacted by drug use; public health options for controlling associated problems; positive and problematic aspects of drug use in terms of costs and benefits; variety of information resources such as scientific literature, surveys, institutional databases, key indicators, key informants, and expert opinions; and use and application of specific decision-tools such as decision tree analyses, benefit-cost analyses, Delphi panels or other consensus-building approaches, and basic epidemic models when developing public health policies having to do with substance use and misuse. Letter grading.

M237. Evolving Paradigms of Prevention: Interventions in Early Childhood. (4) (Formerly numbered 237.) (Same as Health Services M290.) Seminar, three hours; fieldwork, one hour. Designed for graduate students. Introduction to use of early childhood interventions as means of preventing adverse health and developmental outcomes. Concepts of developmental vulnerability, approaches to assessment, models of service delivery, evaluation and cost-benefit issues, funding, and other policy issues. Letter grading.

238. Evolving Paradigms of Prevention: Interventions in Adolescence. (4) Seminar, three hours. Designed for graduate students. Introduction to organizing principles that underlie health assessment and intervention in adolescent populations (identity formation, access to care, knowledge/attitudes/behavior influences) and provide basis for understanding pivotal issues in health enhancement, morbidity, and mortality. Letter grading.

M239. Race and Ethnicity as Concept in Practice and Research. (4) (Same as Asian American Studies M239.) Discussion, three hours. Integration of cross-cultural findings in healthcare with current American (U.S.) healthcare system paradigms to facilitate designing culturally based public health programs and train culturally competent practitioners. Letter grading.

M244. Advanced Seminar: Medical Anthropology. (2 to 4) (Same as Anthropology M263Q, Nursing M273, and Psychiatry M273.) Seminar, three hours. Limited to 15 students. Examination of interrelationships between society, culture, ecology, health, and illness. Bases for written critical analysis and class discussion provided through key theoretical works. S/U or letter grading.

M245A-M245B-M245C. Child Abuse and Neglect. (2-2-1) (Same as Dentistry M300A-M300B-M300C, Education M217G-M217H-M217I, Law M281A-M281B, Medicine M290A-M290B, Nursing M290A-M290B-M290C, and Social Welfare M203F-M203G-M203H.) Lecture, two hours. Course M245A is requisite to M245B, which is requisite to M245C. Intensive interdisciplinary study of child physical and sexual

abuse and neglect, with lectures by faculty members of Schools of Dentistry, Law, Medicine, Nursing, and Public Health and Departments of Education and Psychology, as well as by relevant public agencies. Letter grading.

246. Women's Roles and Family Health. (4) Lecture, two hours; discussion, one hour. Rapidly changing roles of women throughout world are having important effects on women's own health and that of their families. Analysis of multidisciplinary research from both developing and industrialized countries to provide basis for in-depth discussion of programmatic and policy implications. Letter grading.

247. Population Change and Public Policy. (4) Lecture, four hours. Examination of international population change, population-related policies, and public health implications of demographic processes. Letter grading.

248. Women's Mental Health. (4) Discussion, three hours. Designed for graduate students. Prevalence of psychological distress and psychiatric disorder among women, with emphasis on impact of social and cultural factors, including gender roles and socialization, stratification and inequality, work and family roles, diagnosis, help-seeking behavior, and treatment. Letter grading.

M249L. Ethical Issues in Public Health. (4) (Same as Health Services M249L.) Lecture, four hours. Requisites: Health Services 200A, 200B. Case conferences, based on real-life experience, focus on ethical issues in health services organization and management, including ethical issues related to conflict of interest, quality of care, health insurance selection, choice of drugs, reproductive rights, AIDS, and resource allocation. Letter grading.

M250. HIV/AIDS and Culture in Latin America. (4) (Same as Latin American Studies M262.) Seminar, three hours. Exploration of cultural, political, and public health context for people living with and at risk for HIV/AIDS and their families in Latin America. Public health aspects, including epidemiology, comorbidity concerns and community interventions, medical anthropological study of experience of those impacted, and grass-roots responses, as well as political/economic context addressing poverty and structural violence. Letter grading.

M252. Health Policy Analysis. (4) (Same as Health Services M233.) Lecture, three hours. Requisites: Health Services 100 or 200A, M236, M287. Conceptual and procedural tools for analysis of health policy, emphasizing role of analysis during various phases of lifecycle of public policy. Letter grading.

254. Intentional Disasters: War and Refugees. (2) Lecture, two hours. Recommended requisites: courses 211A, 211B, 295, Epidemiology 100, one survey methods course. Previous international experience strongly encouraged. Overview of intentional disasters, with focus on technically underdeveloped areas and consequent population migration. Principal focus on health consequences of these events and strategies to address health issues. Letter grading.

M255. Keeping Children Safe: Causes and Prevention of Pediatric Injuries. (2) (Same as Epidemiology M255.) Lecture, two hours. Injuries have been leading killer of children in U.S. for decades. Children have specific risk factors for injuries, many of which are preventable. Presentation of approaches to research and prevention of pediatric injuries. Letter grading.

M256. Interdisciplinary Response to Infectious Disease Emergencies: Public Health Perspective. (4) Lecture, three hours; discussion, one hour. Designed to instill in professional students ideas of common emergency health problems and coordinated response, with specific attention to bioterrorism. Examination of tools to help students prevent, detect, and intervene in infectious disease emergencies. Interdisciplinary sessions also attended by students in Schools of Dentistry, Medicine, and Nursing during weeks two through five. Letter grading.

257. Program Planning in Community Disaster Preparedness. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 211A, 211B, 295. Health education and emergency management principles combined to design, plan, implement, and evaluate community disaster preparedness programs, including needs assessment, identification of target population, objective writing, program planning, and process, outcome, and impact evaluation. Letter grading.

258. Cooperative Interagency Management in Disasters. (4) Lecture, four hours. Recommended requisite: course 295. Designed for graduate students. Broad overview of how different agencies involved in disaster responses work together to handle impact of mass population emergencies. Identification of role of local, state, and federal governments, nonprofit and private sector organizations, media, and healthcare facilities in disaster situations. Students meet with representatives of different agencies involved in disaster responses and visit one of area's state-of-art emergency management operations facilities. Letter grading.

M260. Health and Culture in Americas. (4) (Same as Anthropology M266 and Latin American Studies M260.) Lecture, three hours. Recommended requisite: course 132. Health issues throughout Americas, especially indigenous/Mestizo Latin American populations. Holistic approach covering politics, economics, history, geography, human rights, maternal/child health, culture. Letter grading.

M263. Social Demography of Los Angeles. (4) (Same as Sociology M263.) Lecture, three hours. Designed for graduate students. Use of city of Los Angeles to examine major social and demographic factors that characterize cities in U.S. Examination of role of these factors in affecting health outcomes. Letter grading.

M264. Latin America: Traditional Medicine, Shamanism, and Folk Illness. (4) (Same as Anthropology M264 and Latin American Studies M264.) Lecture, three hours. Recommended preparation: course 132, bilingual English/Spanish skills. Examination of role of traditional medicine and shamanism in Latin America and exploration of how indigenous and mestizo groups diagnose and treat folk illness and Western-defined diseases with variety of health-seeking methods. Examination of art, music, and ritual and case examples of religion and healing practices via lecture, film, and audiotape. Letter grading.

265. Images of Aging and Illness. (4) Lecture, three hours. Designed for graduate students. Images of aged that students hold, images that serve various professional and commercial interests in society, and images aged themselves use to make sense out of their experiences. Letter grading.

270A-270B. Foundations of Community Health Sciences. (4-4) Lecture, four hours. Enforced requisite: course 210. Course 270A is enforced requisite to 270B. Limited to departmental doctoral students. In-depth analysis of theories, methods, and research on which community health sciences are based. Letter grading.

271. Health-Related Behavior Change. (4) Lecture, four hours. Requisite: course 210. Unified behavioral science approach to natural determinants of change, as foundation for planned change in health-related behavior at community, group, and individual levels. Letter grading.

M272. Social Epidemiology. (4) (Formerly numbered 272.) (Same as Epidemiology M272.) Lecture, two hours; discussion, one hour. Requisite: Epidemiology 100. Relationship between sociological, cultural, and psychosocial factors in etiology, occurrence, and distribution of morbidity and mortality. Emphasis on lifestyles and other socioenvironmental factors associated with general susceptibility to disease and subsequent mortality. Letter grading.

273. Social Epidemiology of Chronic Disease. (4) Lecture, two hours; discussion, one hour. Requisite: Epidemiology 100. Relationship between sociological, cultural, and psychosocial factors in etiology, occurrence, and distribution of chronic diseases. Topics include hypertension, coronary heart disease, and can-

cer. Emphasis on lifestyles and other socioenvironmental factors associated with chronic diseases. Letter grading.

M274. Health Professions. (4) (Same as Sociology M249A.) Lecture, three hours. Requisite: course 210. Sociological examination of concepts "health" and "illness" and role of various health professionals, especially physicians. Attention to meaning of professionalization and professional/client relationships within range of organizational settings. Letter grading.

M275. Health and Illness Behavior. (4) (Same as Sociology M249B.) Seminar, three hours. Designed for graduate students. Seminar discussion based on student responses to readings on medicalization, health promotion as moral enterprise and consumerism, and preoccupation with body. S/U or letter grading.

276. Complementary and Alternative Medicine. (4) Lecture, three hours. Requisites: course 100 or 210, Health Services 100. Analysis of use and acceptance of complementary and alternative medicine (CAM) by clients and providers. Core beliefs of CAM, relationship of CAM and spirituality, licensure and certification of CAM providers, relationship of CAM and conventional medicine, impact of CAM on client identity. Letter grading.

277. Advanced Community Health Education. (4) Lecture, two hours; discussion, two hours. Requisite: course 210. Before planning educational components of health program, one must assess behaviors and factors influencing health problem. Conceptual, theoretical, and evaluative skills developed and applied in constructing community-based educational program. Letter grading.

M278. Work and Health. (4) (Same as Environmental Health Sciences M270.) Lecture, three hours; practicum, one hour. Recommended preparation: graduate-level methods/statistics course, basic epidemiology. Designed for graduate students. Exploration of impact of work on physical and psychological health in context of newly emerging discipline. Focus on psychosocial models, measurement (including hands-on experience), contextual factors (gender, ethnicity, social class), and how work stressors can be ameliorated. S/U or letter grading.

M280. Drugs of Abuse from Neurobiology to Policy and Education. (4) (Same as Neuroscience CM277.) Lecture, four hours. Enforced requisite: Neuroscience M101A. Course ranges from synapse to society. Provides intensive didactic on current neuroscientific basis for understanding substance abuse and blends that material with relevant topics such as epidemiology, co-occurring disorders, treatment options, prevention, and public policies, with emphasis on communication of course materials to general public. Letter grading.

281. Capstone Seminar: Health Promotion and Education. (4) Seminar, 90 minutes; discussion, 90 minutes. Requisite: course 210. Current problems and findings in health promotion and education (e.g., nutrition, family health, AIDS/HIV, minority health); learning from presentations and critical discussions of master's project reports completed under faculty supervision. Letter grading.

282. Communication in Health Promotion and Education. (4) Lecture, three hours. Requisite: course 210. Design, implementation, and evaluation of health communication strategies for health promotion programs. Equal emphasis on communication theories, models, and empirical research literature and on specific applications in health programs and case studies. Letter grading.

283. Evidence-Based Health Promotion Programs for Older Adults. (4) Seminar, three hours. Requisite: course 210. Graduate seminar intended to explore sociocultural determinants of health-related behaviors among aged. Letter grading.

284. Sociocultural Aspects of Mental Health. (4) Discussion, three hours. Designed for graduate students. Examination of how society shapes mental health of its members and lives of those who have

been identified as mentally ill. Group differences (e.g., gender, ethnicity) in disorder and how it is socially constructed. Letter grading.

285. Aging, Health, and Society. (4) Lecture, three hours; discussion, one hour. General introduction to major social issues affecting health of elderly in America. Leading gerontological theories and major issues that affect aged, showing how those theories and issues influence health status, health promotion, and illness among elderly. S/U or letter grading.

286. Doctoral Roundtable in Community Health Sciences. (4) Seminar, two hours. Designed for department doctoral students who must enroll every term until they are advanced to candidacy. Interactive seminar with focus on research process and social mechanisms in science. May be repeated for credit. S/U grading.

M287. Politics of Health Policy. (4) (Same as Health Services M287.) Lecture, three hours; discussion, one hour. Requisites: course 210, or Health Services 200A and 200B. Examination of politics of health policy process, including effects of political structure and institutions; economic and social factors; interest groups, classes, and social movements; media and public opinion; and other factors. Letter grading.

288. Health Communication in Popular Media. (4) Lecture, three hours; discussion, one hour. Requisites: course 210 or prior social sciences courses. Designed for graduate public health students. Topics include how popular media portray health issues, how people use these media, and impact of these media on health behaviors and perceptions. Strategies to influence or understand media, such as media advocacy, health journalism, media literacy, and entertainment education. Case examples include both domestic and global health issues. Media content analysis, audience research, and assessment of media effects. Letter grading.

289. Drug Abuse in Pregnancy: Special Focus on Adolescents and Utilizing Secondary Data Sources. (4) Lecture, three hours; clinical placement. Designed for graduate students. Multidisciplinary graduate seminar combining didactic material on substance abuse in pregnancy, participation in ongoing research, and clinical experience in on- and off-campus settings. Medical, social, economic, and legal issues affecting pregnant substance abusers. Letter grading.

290. Race, Class, Culture, and Aging. (4) Lecture, three hours; discussion, one hour. Experience of aging for African American, Latino, and Asian elderly examined in context of their families, communities, and nation. Exploration of cultural and structural influences on health and lived experiences of those elders. Letter grading.

291. Health Policy and Aged. (4) Lecture, three hours; discussion, one hour. Examination of political, economic, and social forces that shape health policy for aged, identifying failings in those policies within framework of broader health policy problems. Letter grading.

292. Communication and Media Development in Health Promotion/Education. (4) Lecture, three hours; field practice, one hour. Requisites: course 210 or prior social sciences courses. Design of health communication materials using digital media that integrates practice and theory. Letter grading.

293. Social and Behavioral Research in AIDS: Roundtable Discussion. (2 to 4) Discussion, two hours; individual consultation, two hours. Review and discussion of research programs directed toward identification of psychosocial, biobehavioral, environmental, and community factors related to prevention and control of AIDS/HIV. Letter grading.

M294. Social and Behavioral Factors of HIV/AIDS: Global Perspective. (4) (Same as Psychiatry M288.) Lecture, four hours. Requisites: course 100 and Epidemiology 100, or prior social sciences courses. Overview of social and behavioral factors that influence both transmission and prevention of HIV/AIDS throughout world. Letter grading.

295. Overview of Emergency Public Health. (4) Lecture, four hours. Designed for graduate students. Overview of issues involved in disaster preparedness and response for public health agencies. Introduction to theoretical and practice aspects of field of emergency public health. Examination of disaster cycle and various natural and human-induced hazards from public health perspective. Letter grading.

296. Advanced Research Topics in Community Health Sciences. (2 to 4) Discussion, two to four hours. Advanced study and analysis of current topics in community health sciences. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. S/U or letter grading.

M299. Intervention to Reduce HIV and Its Consequences. (4) (Same as Psychiatry M289.) Lecture, three hours. Examination of interventions to reduce HIV/AIDS transmission. Review of theory and research supporting efficacy of HIV interventions for variety of high-risk populations. Letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

400. Field Studies in Public Health. (2 or 4) Fieldwork, to be arranged. Field observation and studies in selected community organizations for health promotion or medical care. Students must file field placement and program training documentation on form available from Student Affairs Office. May not be applied toward M.S. minimum course requirement; 4 units may be applied toward 60-unit minimum total required for M.P.H. degree. Letter grading.

401. Measuring Sensitive Topics. (4) Lecture, two hours; discussion, two hours. Limited to School of Public Health doctoral students. Data collection methods and designs and how to think analytically about them, ethics in measurement of sensitive topics, review of current best practices in measuring important public health content areas. Letter grading.

M406. Preparing for Smallpox or Other Bioterrorist Events. (2) (Same as Epidemiology M406.) Lecture, two hours. Major current public health issue is massive effort to prepare for possible bioterrorist events. Practical application of principles of epidemiology and public health in preparing for smallpox or other bioterrorist events. Letter grading.

M411. Issues in Cancer Prevention and Control. (4) (Same as Health Services M411.) Lecture, four hours. Designed for juniors/seniors and graduate students. Introduction to causes and characteristics of cancer epidemic, cancer control goals for nation, and interventions designed to encourage smoking cessation/prevention, cancer screening, and other dietary, psychosocial, and lifestyle changes. Letter grading.

M418. Rapid Epidemiologic Surveys in Developing Countries. (4) (Same as Epidemiology M418.) Lecture, four hours. Requisites: Biostatistics 100A, Epidemiology 200A, 200B, and 200C (and/or 100). Presentation of how to do health surveys in Third World countries. Practical assistance for planning and organizing surveys, including use of microcomputers to develop and test questionnaire, select sample, process and analyze data, and prepare final report. Letter grading.

M420. Children with Special Healthcare Needs: Systems Perspective. (4) (Same as Health Services M420 and Social Welfare M290I.) Lecture, three hours; fieldwork, one hour. Examination and evaluation of principles, policies, programs, and practices that have evolved to identify, assess, and meet special needs of infants, children, and adolescents with developmental disabilities or chronic illness and their families. Letter grading.

425. Child Advocacy: Skills for Effective Action. (4) Seminar, three hours; fieldwork, one hour. Designed for graduate students. Use of case method approach to involve students both in classroom discus-

sions and in fieldwork projects about which they update classmates. Highly respected leaders for children in community share experiences and offer insight. Letter grading.

426. School-Linked Services: Integrated Health, Education, and Social Services for Children in Communities. (4) Seminar, three hours; fieldwork, one hour. Designed for graduate students. Examination of school services in context of other dramatic changes, scope of problems facing youth, roles that schools may serve as organizers/delivery sites for comprehensive services, and factors that influence development of appropriate school service models. Letter grading.

427. Reproductive Health in Sub-Saharan Africa. (4) Lecture, four hours. Recommended requisite: course 247. In-depth understanding of reproductive health challenges facing sub-Saharan Africa and main programs designed to address them. Topics include family planning, STIs, abortion, adolescents, HIV/AIDS, and refugees. Letter grading.

M428. Child and Family Health Program Community Leadership Seminar. (2) (Same as Health Services M428.) Seminar, two hours. Designed for graduate students. Examination of characteristics of community-based organizations (CBOs) and role of leadership in decision-making process involved in major issues facing maternal and child health in Los Angeles County. Focus on specific leadership competencies that are or should be employed by organizations effective in shaping maternal and child health programs and policies (or any population-level policies and programs). Leaders from CBOs in Los Angeles meet with students, comment on their practicum experiences, and underscore community leadership concepts demonstrated by those CBOs. S/U or letter grading.

431. Foundations of Reproductive Health. (4) Lecture, three hours. Limited to graduate students. Understanding reproductive technologies and practices is critical for public health students interested in designing programs to address problems such as unwanted pregnancy, family planning, sexually transmitted diseases, and inadequate preventive services. Examination of foundations of reproductive health from medical perspective, with particular attention to implications for public health programs, health services, and policy. Topics include anatomy and physiology of male and female reproductive health tracts, methods of birth control, medical and surgical abortion, infertility, maternal care, and sexual violence and trauma. S/U or letter grading.

432. Perinatal Healthcare: Principles, Programs, and Policies. (4) Lecture, three hours; discussion, one hour. Comprehensive examination of perinatal healthcare, including perinatal epidemiology, outcome measures, public programs, controversies surrounding new technology, regionalization, organization of services at federal, state, and county levels, and medical/legal issues. S/U or letter grading.

433. Reproductive Health: Demographic Applications. (4) Lecture, four hours. Introductory aspects of population dynamics; reproductive biology (male and female); contraceptive methods; fertility-related behaviors and STDs; methods to measure contraceptive (life tables) and program (evaluation) effectiveness. Letter grading.

434A. Maternal and Child Health in Developing Areas. (4) Lecture, four hours. Requisite: course 231. Major health problems of mothers and children in developing areas, stressing causation, management, and prevention. Particular reference to adapting programs to limited resources in cross-cultural milieu. S/U or letter grading.

435. Seminar: Advanced Issues in Women's Health. (4) Seminar, three hours. Preparation: at least one prior women's health course, one to two biostatistics courses, one research methods course. Provides more advanced and in-depth understanding of ways in which scientists "know" and considerations of women's place in scientific discourse. Examination of series of case studies as starting point for discussion. Letter grading.

M436A-M436B. Child Health, Programs, and Policies. (4-4) (Same as Health Services M449A-M449B.) Lecture, four hours. Requisite: Health Services 100. Course M436A is requisite to M436B. Examination of history of child health policy trends and determinants of health, structure, and function of health service system; needs, programs, and policies affecting especially at-risk populations. Letter grading.

437. Principles and Practice of Preventive Medicine. (4) Lecture, two hours; discussion, two hours. Designed for graduate students. Comprehensive review and evaluation of scientific background and application of principles of preventive medicine, with primary focus on families and disadvantaged. Letter grading.

440. Public Health and National Security at U.S.-Mexico Border. (2) Lecture, two hours. Designed for graduate students. Exploration of community and environmental health and health services issues that are present along U.S.-Mexico and coastal California borders. Integrated within public health framework are issues and mitigation of national security and disaster/terrorist risks and hazards. Letter grading.

441. Planning and Evaluation of Global Health Programs. (4) Lecture, four hours. Theory, guidelines, and team exercise for planning community health/family planning projects in U.S. and in developing countries. Phases include community needs identification; goal setting; budget and work plan development; funding; staffing; evaluation design; data and cost analysis; and project presentation. Letter grading.

443. Assessment of Family Nutrition. (4) Lecture, four hours. Requisite: course 231. Assessment of nutritional status of families in developing countries, with special reference to limited resources, terrain, and cross-cultural considerations, stressing anthropometric methods and techniques. S/U or letter grading.

444. Anthropometric and Dietary Aspects of Nutritional Assessment. (4) Lecture, two hours; laboratory, two hours. Requisite: course 443. Practical skills in anthropometric and dietary assessment, including selection of appropriate methods, data gathering and handling, and analysis and presentation. Letter grading.

446. Nutrition Education and Training: Third World Considerations. (4) Lecture, two hours; discussion, one hour; student participation, one hour. Requisite: course 434A. Problems and priorities in nutrition education and training for families and health workers in Third World countries, including new concepts in primary healthcare services, mass media, communications, and governmental and international interventions. S/U or letter grading.

447. Health and Social Context in Middle East. (4) Lecture, four hours. Recommended preparation: background in Islamic or Middle Eastern studies. Requisite: course 200 or 231 or 434A. Current health issues and problems of countries in Middle East and implications for socioeconomic development. Review of economic, demographic, and cultural variation of region to provide background for discussion of trends and patterns of health and nutritional status of population in area. Letter grading.

448. Nutrition Policies and Programs: Domestic and International Perspectives. (4) Lecture, two hours; discussion, two hours; field visits. Preparation: one nutrition sciences course and/or nutrition program experience. Nutrition programs and policies in U.S. and developing countries compared and contrasted. Analysis of role of major international, governmental, and nongovernmental agencies. Emphasis on meeting needs of vulnerable populations. Letter grading.

449. Nutrition and Chronic Disease. (4) Lecture, four hours. Preparation: one graduate or undergraduate course each in chemistry or biochemistry, physiology, and nutritional sciences, or M.D. degree. Advanced-level seminar on nutritional needs of healthy individuals, current knowledge of role of nutrition in disease prevention, nutritional and metabolic responses to disease, and role of nutritional therapy in management of disease. Letter grading.

451. Post-Disaster Community Health. (4) Lecture, four hours. Requisite: course 295. Examination of how public health research and practices can be combined to address post-disaster community health needs. Identification of disaster-related health problems, data collection strategies, and service delivery approaches in post-disaster environment. Letter grading.

452. Management of Food and Nutrition in Major Emergencies. (4) Lecture, three hours. Designed for second-year master's or doctoral students interested in humanitarian relief. Basic principles required to design rational and cost-effective food and nutrition emergency relief approaches and programs. Letter grading.

CM470. Improving Worker Health: Social Movements, Policy Debates, and Public Health. (4) (Formerly numbered M470.) (Same as Environmental Health Sciences M471 and Urban Planning M470.) Lecture, three hours; fieldwork, two hours. Examination of intersection between work, health, and environment, analysis of social causes of health disparities, investigation of historical trends and social movements, interpretation of current policy debates, and development of innovative interventions. Concurrently scheduled with course CM170. S/U or letter grading.

474. Self-Care and Self-Help in Community Health. (4) Lecture, two hours; discussion, two hours. Review of background, principles, concepts, programs, and research concerning emerging field of self-care in health. S/U or letter grading.

477. Health Disparities, Health Equity, and Sexual Minority Populations. (4) Lecture, two hours; discussion, one hour. Limited to graduate students. Examination of health disparities affecting sexual minority populations, category that includes lesbians, gay men, bisexuals, and transgender (LGBT) persons. Use of Healthy People 2010 Companion Document for LGBT Health to outline key health issues and national recommendations for achieving reductions in each area. Discussion of considerations for providing clinical care and public health practice in this population, unique social and contextual factors influencing LGBT health, and methodological issues for conducting research among LGBT persons. S/U or letter grading.

482. Practicum: Community Health Sciences. (4) Discussion, two hours; fieldwork, up to 20 hours. Requisites: courses 210, 211A, 211B. Understanding of professional practice in health-related organizations. Letter grading.

483. Leadership Development and Empowerment for Health Promotion and Health Education. (4) Lecture, three hours; discussion, one hour. Requisites: courses 210, 211A, 211B. Development of basic understanding of and competency in leadership development and empowerment support for health promotion in multicultural and distressed communities (e.g., south-central Los Angeles). Letter grading.

484. Risk Communications. (4) Lecture, three hours; fieldwork, one hour. Requisites: courses 210, 211A, and 211B, or prior public health and behavioral sciences courses. Risk communication theory, research, and practice, including social and psychological bases of population risk perceptions, media theories, and how risk is portrayed in media. Environmental, product safety, food-borne and infectious diseases, disasters, and bioterrorism communications. Letter grading.

485. Resource Development for Community Health Programs. (4) Lecture, three hours; fieldwork, one hour. Designed for graduate students. Overview course of fund and resource development for public health and community-based programs. Lectures and workshops include developing grant proposals, researching funding sources, evaluating proposals, developing volunteer and in-kind resources, and implementing capital campaigns. Letter grading.

487. Community Organization for Health. (4) Lecture, three hours; fieldwork, four to six hours. Preparation: three public health, sociology, or anthropology courses. Requisite: course 210. Theory and practice of community organizations, including models and strategies of community organization and their appli-

cation to health problems and health policy. Particular attention to use of community organization for health promotion and to change public policy. Letter grading.

495B. Teaching in Public Health. (4) Lecture, three hours. Limited to School of Public Health doctoral students. Preparation of advanced doctoral students for teaching responsibilities as part of university career. Although classroom teaching to be emphasized, information and ideas can be applied to other educational and training settings. S/U grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. No more than 8 units may be applied toward master's degree minimum total course requirement; may not be applied toward minimum graduate course requirement. S/U grading.

596. Directed Individual Study or Research. (2 to 12) Tutorial, to be arranged. Limited to graduate students. Individual guided studies under direct faculty supervision. Only 4 units may be applied toward M.P.H. and M.S. minimum total course requirement. May be repeated for credit. S/U or letter grading.

597. Preparation for Master's Comprehensive or Doctoral Qualifying Examinations. (2 to 12) Tutorial, to be arranged. Limited to graduate students. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

598. Master's Thesis Research. (2 to 8) Tutorial, to be arranged. Only 4 units may be applied toward M.P.H. and M.S. minimum total course requirement; may not be applied toward minimum graduate course requirement. May be repeated for credit. S/U grading.

599. Doctoral Dissertation Research. (2 to 12) Tutorial, to be arranged. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

COMPARATIVE LITERATURE

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Scope and Objectives

Standing at the forefront of innovative work in literary, theoretical, and cultural studies, comparative literature is one of the most exciting fields in the humanities. As a discipline it requires exceptional linguistic ability, theoretical knowledge, and high intellectual caliber. UCLA's program offers students the opportunity to work with faculty members in any of the University's language and literature departments as well as with the Comparative Literature Department faculty.

The Comparative Literature Department, an interdisciplinary and multilingual department, is committed to continuing its pioneering work in defining new literary paradigms and fostering new directions for exploration in literary studies, including such areas as the relationship between translation and transnationalism, literary theory and emerging media, the future of national literatures in an era of globalization, gender and sexuality studies, East-West cultural encounters, human rights and global censorship, postcolonial and diaspora studies, and experimental approaches to literature and culture.

Focusing first and foremost on those literary elements that preoccupy literary studies in general, such as genre, period, theme, language, and theory, comparative literature also extends its range to questions that concern other disciplines such as anthropology, art history, film and media studies, gender studies, history, and philosophy. Courses are designed to provide students with both a historical and theoretical understanding of literary and cultural forms, themes, and movements. Given its focus on interdisciplinary research and pedagogy, comparative literature is the natural site around which to organize modern language and literary studies.

Undergraduate Study**Comparative Literature B.A.****Preparation for the Major**

Required: (1) Two courses from the Comparative Literature 1, 2, or 4 series (with approval of the director of undergraduate studies, a comparable and appropriate lower division course in another department may be substituted for one of the courses); (2) completion of the College Writing requirement; and (3) literary proficiency in at least one language other than English, to be demonstrated by admission into one upper division literature course in the original language.

Transfer Students

Transfer applicants to the Comparative Literature major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: one English composition course, two literature survey courses, at least one of which must be world literature, and the equivalent of at least one year of foreign language.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Ten courses, of which (1) a minimum of four must be from comparative literature offerings, including Comparative Literature 100 and at least three additional comparative literature courses selected from M101 through 197; (2) four upper division literature courses using original language texts in the major language area; (3) two upper division literature courses using original language texts in the minor language area (students may petition the undergraduate adviser to take three upper division literature courses in translation if their major area is in a language other than English).

Honors Program

The honors program is open to Comparative Literature majors with a 3.5 departmental and a 3.25 overall grade-point average. Eligible interested students should contact the undergraduate adviser to enter the program.

Honors candidates must complete all requirements for the major and an honors research paper (in addition to regular course requirements) in two of the four required upper division comparative literature courses. Students must also complete Comparative Literature 198 with a core faculty member in which they write a senior honors thesis of approximately 25 pages.

Comparative Literature Minor

The Comparative Literature minor offers students interested in literature and the humanities the opportunity to gain insight into the critical problems and theories addressed by comparative literature and to apply that knowledge in literature and comparative literature courses.

To enter the minor students must have fulfilled the College Writing requirement, have completed 40 units with an overall grade-point average of 2.0 or better, have taken at least one year or equivalent of a language other than English, and file a petition with either the faculty or staff undergraduate adviser, 350B Humanities Building, (310) 825-7650.

Required Courses (28 units minimum): (1) Four upper division comparative literature courses (one course from Comparative Literature 1A through 2DW may be substituted); (2) two upper division courses in one literature (e.g., Arabic, Chinese, English, French, German, Korean, Russian, Spanish) in the original lan-

guage; and (3) one upper division course in a second literature in the original language (one level six foreign language course may be substituted). If students complete two upper division courses in a language other than English, they may petition to take one upper division course taught in English translation to fulfill the third requirement.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Comparative Literature offers Master of Arts (M.A.), Candidate in Philosophy (C.Phil.), and Doctor of Philosophy (Ph.D.) degrees in Comparative Literature.

Comparative Literature**Lower Division Courses****1A. World Literature: Antiquity to Middle Ages. (5)**

Lecture, three hours; discussion, one hour. Enforced requisite: satisfaction of Entry-Level Writing requirement. Not open for credit to students with credit for course 2AW or 4AW. Study of major texts in world literature, with emphasis on Western civilization. Texts include major works and authors such as *Iliad* or *Odyssey*, Greek tragedies, portions of Bible, Virgil, Petronius, St. Augustine, and others such as *Gilgamesh* or *Tristan and Iseult*. P/NP or letter grading.

1B. World Literature: Middle Ages to 17th Century. (5)

Lecture, three hours; discussion, one hour. Enforced requisite: satisfaction of Entry-Level Writing requirement. Not open for credit to students with credit for course 2BW or 4BW. Study of major texts in world literature, with emphasis on Western civilization. Texts include works and authors such as Chaucer's *Canterbury Tales*, Dante's *Divine Comedy*, Boccaccio's *Decameron*, Cervantes' *Don Quixote*, Shakespeare, Calderón, Molière, and Racine. P/NP or letter grading.

1C. World Literature: Age of Enlightenment to 20th Century. (5)

Lecture, three hours; discussion, one hour. Enforced requisite: satisfaction of Entry-Level Writing requirement. Not open for credit to students with credit for course 2CW or 4CW. Study of major texts in world literature, with emphasis on Western civilization. Authors include Swift, Voltaire, Diderot, Rousseau, Goethe, Flaubert, Ibsen, Strindberg, Dostoevsky, Kafka, Joyce, Woolf, and Stevens. P/NP or letter grading.

1D. Great Books from World at Large. (5)

Lecture, three hours; discussion, one hour. Enforced requisite: satisfaction of Entry-Level Writing requirement. Not open for credit to students with credit for course 2DW or 4DW. Study of major literary texts usually overlooked in courses that focus only on canon of Western literature. Texts from at least three of following areas read in any given term: African, Caribbean, East Asian, Latin American, and Middle Eastern literature. P/NP or letter grading.

2AW. Survey of Literature: Antiquity to Middle Ages. (5) Lecture, two hours; discussion, two hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 1A or 4AW. Study of selected texts from antiquity to Middle Ages, with emphasis on literary analysis and expository writing. Texts include works and authors such as *Odyssey*, *Gilgamesh*, Sappho, Greek tragedies, *Aeneid*, Petronius, *Beowulf*, Marie de France, *Tristan and Iseult*, *1001 Nights*, *Popul Vuh*. Satisfies Writing II requirement. Letter grading.

2BW. Survey of Literature: Middle Ages to 17th Century. (5) Lecture, two hours; discussion, two hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 1B or 4BW. Study of selected texts from Middle Ages to 17th century, with emphasis on literary analysis and expository writing. Texts may include works by authors such as Chaucer, Dante, Cervantes, Marguerite de Navarre, Shakespeare, Calderón, Molière, and Racine. Satisfies Writing II requirement. Letter grading.

2CW. Survey of Literature: Age of Enlightenment to 20th Century. (5) Lecture, two hours; discussion, two hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 1C or 4CW. Study of selected texts from Age of Enlightenment to 20th century, with emphasis on literary analysis and expository writing. Texts may include works by authors such as Swift, Voltaire, Diderot, Rousseau, Goethe, Flaubert, Ibsen, Strindberg, M. Shelley, Dostoevsky, Kafka, James Joyce, Garcia Marquez, and Jamaica Kincaid. Satisfies Writing II requirement. Letter grading.

2DW. Survey of Literature: Great Books from World at Large. (5) Lecture, two hours; discussion, two hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 1D or 4DW. Study of major literary texts usually overlooked in courses that focus only on canon of Western literature, with emphasis on literary analysis and expository writing. Texts from at least three of following areas read in any given term: African, Caribbean, East Asian, Latin American, and Middle Eastern literature. Satisfies Writing II requirement. Letter grading.

4AW. Literature and Writing: Antiquity to Middle Ages. (5) Discussion, four hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 1A or 2AW. Study and discussion of selected texts from antiquity to Middle Ages, with emphasis on literary analysis and expository writing. Texts include works and authors such as *Iliad*, *Odyssey*, *Gilgamesh*, Sappho, Greek tragedies, *Aeneid*, Petronius, *Beowulf*, or Marie de France. Satisfies Writing II requirement. Letter grading.

4BW. Literature and Writing: Middle Ages to 17th Century. (5) Discussion, four hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 1B or 2BW. Study and discussion of selected texts from Middle Ages to 17th century, with emphasis on literary analysis and expository writing. Texts may include works and authors such as Chaucer, Dante's *Divine Comedy*, Cervantes' *Don Quixote*, Shakespeare, *1001 Nights*, Christine de Pizan, *Popul Vuh*, Molière, and Racine. Satisfies Writing II requirement. Letter grading.

4CW. Literature and Writing: Age of Enlightenment to 20th Century. (5) Discussion, four hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 1C or 2CW. Study and discussion of selected texts from Age of Enlightenment to 20th century, with emphasis on literary analysis and expository writing. Texts may include works by authors such as Swift, Voltaire, Diderot, Rousseau, Goethe, M. Shelley, Flaubert, Ibsen, Strindberg, Dostoevsky, Gogol, Kafka, Joyce, Beckett, L. Hughes, and Garcia Marquez. Satisfies Writing II requirement. Letter grading.

4DW. Literature and Writing: Great Books from World at Large. (5) Discussion, four hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 1D or 2DW. Study and discussion of major literary texts usually overlooked in courses that focus only on canon of Western literature, with emphasis on literary analysis and expository writing. Texts from at least three of following areas read in any given term: African, Caribbean, East Asian, Latin American, and Middle Eastern literature. Texts may include works by authors such as Ngugi, Desai, Kincaid, Emecheta, El Saadawi, Achebe, Pak, Can Xue, Neruda, and Rushdie. Satisfies Writing II requirement. Letter grading.

Upper Division Courses

100. Introduction to Literary and Critical Theory. (5) Lecture, four hours. Preparation: satisfaction of Entry-Level Writing and College Writing requirements. Requisites: two courses from Comparative Literature 1 or 2 series or English 10 series or Spanish 60 series, etc. Seminar-style introduction to discipline of comparative literature presented through series of texts illustrative of its formation and practice. Letter grading.

M101. Hebrew Literature in English—Literary Traditions of Ancient Israel: Bible and Apocrypha. (4) (Same as Jewish Studies M150A.) Lecture, three hours. Study of literary culture of ancient Israel through examination of principal compositional strategies of Hebrew Bible and Apocrypha (read in translation). P/NP or letter grading.

102. Classical Tradition: Epic. (4) Seminar, three hours. Designed for upper division literature majors. Analysis of *Iliad*, *Odyssey*, *Aeneid*, *Gerusalemme Liberata*, and *Paradise Lost* both in relation to their contemporary societies and to literary traditions. Emphasis on how poets build on work of their predecessors. P/NP or letter grading.

C105. Comic Vision. (4) Lecture, three hours. Designed for upper division literature majors. Literary masterpieces, both dramatic and nondramatic, selected to demonstrate varieties of comic expression. May be concurrently scheduled with course C205. Undergraduate students read all works in translation. P/NP or letter grading.

106. Archetypal Heroes in Literature. (4) Seminar, three hours. Designed for juniors/seniors. Survey and analysis of function and appearance of such archetypal heroes as Achilles, Ulysses, Prometheus, Oedipus, and Orpheus in literature from antiquity to modern period. All works read in translation. P/NP or letter grading.

108. Autobiography in Francophone and Anglophone Worlds. (5) Seminar, three hours. Designed for juniors/seniors. Focus on number of narratives that use autobiographical mode to situate self in relation to history of nations and biography of family members. Introduction to theories of subjectivity and to genre of self-writing in France, Africa, and Caribbean. Comparison of serial autobiographies of Assia Djebar, Annie Ernaux, and Jamaica Kincaid to better understand limits of genre. Texts represent different limit cases of autobiography and can be read as biography, auto/ethnography, and auto/historiography. Examination of differences that emerge between autobiographical pact (Lejeune) that some authors create with their readers and liberties that others take with history. Attention to way visual culture (painting, photography, film) helps authors make their point, access memory, or create metaphors of self. P/NP or letter grading.

M110. Thousand and One Nights/Alf Layla Wa-Layla. (4) (Same as Arabic M110.) Lecture, three hours. Knowledge of Arabic not required. Since its appearance in Europe in 1704, *Thousand and One Nights* is most well-known work of Arabic literature in West. Examination of cycle of tales more commonly known as *Arabian Nights*, including history of its translation, contemporary oral performances of tales in Arabic-speaking world, literary emergence of vernacular language in relation to classical Arabic, and

Western appropriations of tales in music, film, and novels (Ravel, Rimsky-Korsakov, Barth, Poe, and Walt Disney). P/NP or letter grading.

111. Histories and Methodologies of Comparative Literature. (5) Seminar, three hours. Preparation: satisfaction of Entry-Level Writing and College writing requirements. Requisites: two courses from Comparative Literature 1 or 2 series or English 10 series or Spanish 60 series. Recommended: course 100. Exploration of history of comparative literature discipline and variety of central methodological past and present debates concerning nature of discipline. Introduction to several key theoretical texts from early 20th century to present, addressing these and other related questions: what does it mean to read comparatively? What is significance of reading literature across existing national and linguistic borders? What are criteria for conducting such comparative readings? Is comparative reading more concerned with finding similarities or differences? P/NP or letter grading.

M119. Al-Andalus: Literature of Islamic Spain. (4) (Same as Arabic M155.) Lecture, three hours. Study of literature of Islamic Spain to learn about interaction of Arabic and Western and Arabic and Jewish cultures and to recognize Islamic culture as vital force in European life and letters. P/NP or letter grading.

120. Individual and Society in Renaissance. (4) Lecture, three hours; discussion, one hour. Requisite: one course from 1A, 1B, 1C, 2AW, 2BW, 2CW, or English Composition 3 or 3H. Explorations of change in Western man's relationship to his world, himself, and his art; reading of such works as *Don Quixote*, Montaigne's *Essays*, *Gargantua and Pantagruel*, *The Praise of Folly*, *Utopia*. P/NP or letter grading.

C122. Renaissance Drama. (4) Lecture, three hours. Designed for upper division literature majors. Broad introduction to subject matter and types of plays in Renaissance, with consideration of historical and literary influences on plays. Readings include works of such dramatists as Tasso, Machiavelli, Lope de Vega, Racine, Jonson, Shakespeare. May be concurrently scheduled with course C222. Undergraduate students read all works in translation. P/NP or letter grading.

M123. Oral Literature and Performance of Arab World. (4) (Same as Arabic M123.) Lecture, three hours. Knowledge of Arabic not required. Introduction to study of living oral traditions of troubadours, storytellers, oral poets, and performers in Arabic-speaking Middle East. P/NP or letter grading.

M148. Contemporary Arab Film and Song. (4) (Same as Arabic M148.) Seminar, three hours. Exploration of conjunctions between contemporary Arab film and song and between popular cultures and cultures of commitment (Itizam), with possible focus on specific genres such as realist/neorealist Arab film; feminist Arab film or popular Arab film and song; topics such as nation, gender, and representation or democracy and human rights or censorship, reception, and resistance. Possible examination of various national cinemas such as Tunisian, Egyptian, Moroccan, Algerian, and Palestinian. Various musical genres such as Rai, Mizoued, and Hip-hop also examined in relation to emergence not only of national cinemas, national music industries, and iconic singers but also of video clip, satellite TV, star academy, and reality shows—all products of transnational and pan-Arab mass media. P/NP or letter grading.

C152. Symbolism and Decadence. (5) Seminar, four hours. Designed for upper division literature majors. Study of symbolist and decadent movements in 19th- and 20th-century English and French poetry and prose, including authors such as Baudelaire, Rimbaud, Verlaine, Mallarmé, Wilde, Yeats, and Eliot. May be concurrently scheduled with course C252. Undergraduate students may read all required French texts in translation. P/NP or letter grading.

C153. Post-Symbolist Poetry and Poetics. (5) Seminar, four hours. Designed for upper division literature majors. Study of specific poets and poetics related to them during first half of 20th century. Texts may include poets such as W.B. Yeats, Ezra Pound, T.S. Eliot, Paul Valéry, R.M. Rilke, Gunnar Ekelöf, and

Wallace Stevens. May be concurrently scheduled with course C253. Undergraduate students may read all works in translation. P/NP or letter grading.

154. *Adventures of Avant-Garde.* (5) Seminar, four hours. Designed for upper division literature majors. Interdisciplinary study of avant-garde literature and art, including futurism, Dadaism, Expressionism, Surrealism, new avant-gardes. Works by Marinetti, Boccioni, Picasso, Stein, Malevich, Popova, Mayakovsky, Brecht, Fritz Lang, Duchamp, Breton, Bunuel, Lispector, Warhol, Orlan. Emphasis on cross-fertilization among different kinds of aesthetic expression. P/NP or letter grading.

C155. *Hemispheric Exchanges.* (5) Lecture, three hours. Designed for juniors/seniors. In "Reading North by South," Neil Larsen claims that North American interest in Latin American Boom literature was of sinister intent, being largely product of U.S. Cold War politics, investing in fiction that could produce images of areas ripe for development. From poetry perspective, dynamic was quite different. In 1930s, North American poets became involved in labor of love, reading, circulating, and translating recent or contemporaneous poetry by their counterparts to south, producing lingua franca with unexplored consequences for poetry north and south of border. Study of poetry translations by writers from both hemispheres and examination of consequences of these preliminary translations for later development of poetry on both sides of continental divide. Concurrently scheduled with course C255. P/NP or letter grading.

C156. *Fantastic Fictions.* (4) Seminar, three hours. Designed for upper division literature majors. Time and again in modern literature, corpses become conduits or catalysts for revelation. What are ghosts that fiction frequently cannot put to rest, and what is their connection to national history or nation language or narrative? Readings from James Joyce, John Banville, Henry James, Toni Morrison, Adolfo Bioy Casares, Juan Carlos Onetti, Juan Rulfo, and Carlos Fuentes, with films by Alejandro Amenabar, Andrei Tarkovsky, and Kenji Mizoguchi. May be concurrently scheduled with course C256. Undergraduate students read all works in translation. P/NP or letter grading.

C157. *Memory and Forgetting.* (5) Seminar, four hours. Reading of theoretical accounts of nature of traumatic memory and consideration of relationship between memory and history, meanings of both writing and reading about traumatic events, and discussion of ethical (personal and communal) commitment to memory. Reading of memoirs of survivors and questioning of importance of authenticity in regard to representations of past. Is memory necessarily based on actual past? What is role of testimony in maintenance of collective memory? How is value of testimony judged? What are criteria on which authenticity is claimed? Concurrently scheduled with course C257. P/NP or letter grading.

158. *Colonial Encounters.* (4) Seminar, three hours. Discussion of how Western textual system restricts cultures of colonized peoples to encounter with Europeans. As means of understanding limits to European frame of reference, reading of English literary works alongside their postcolonial counterparts. Investigation of how reversal of perspective affects telling of tale. P/NP or letter grading.

159. *Exilic Pleasures: Memory, Writing, and Belonging in Contemporary Thought and Writings.* (5) Lecture, four hours. Engagement of theoretical and literary texts about experience of living in exile and questioning of political and poetic possibilities and limitations that this condition brings about. Exploration of relationships between exile, poetic expression, freedom, memory, writing, and collective identification. Clarification of difference between "exile by choice" and "forced exile," proceeding to distinguish between exile understood in terms of (modernist) literary trope—and sociohistorical condition of living in exile, asking what does it mean to think about exile in comparative terms? P/NP or letter grading.

C160. *Literature and Visual Arts.* (4) Lecture, three hours. Designed for juniors/seniors. Knowledge of art history valuable but not required. Assuming that litera-

ture and visual arts are in some degree expressions of cultural and philosophical patterns of eras, study of relationships between writers and movements in painting, architecture, and sculpture. Interdisciplinary investigation of similarities and differences between plastic and verbal arts in comparative study. May be repeated for credit with instructor and/or topic change. May be concurrently scheduled with course C260. Undergraduate students read all works in translation. P/NP or letter grading.

C161. *Fiction and History.* (4) Seminar, three hours. Designed for upper division literature majors. Analysis of use of historical events, situations, and characters in literary works of Renaissance and/or modern period. Texts and individual assignments range from Renaissance historical narratives (Italian humanists, Machiavelli) to 19th- and 20th-century novels by authors such as Stendhal, Verga, Tomasi di Lampedusa, Carpentier, and Kundera. Use of fictional methods by historians. Emphasis on how aesthetic, ideological, and political factors influence authors' choice and use of historical material. May be concurrently scheduled with course C261. P/NP or letter grading.

M162. *Israel Seen through Its Literature.* (4) (Same as Jewish Studies M162.) Lecture, three hours. Attempt to impart profound understanding of Israel as seen through its literature. Examination of variety of literary texts—stories, novels, and poems—and reading of them in context of their historical backgrounds. P/NP or letter grading.

C163. *Crisis of Consciousness in Modern Literature.* (5) Seminar, three hours. Designed for upper division literature majors. Study of modern European and American works that are concerned both in subject matter and artistic methods with growing self-consciousness of human beings and their society, with focus on works of Kafka, Rilke, Woolf, Sartre, and Stevens. May be concurrently scheduled with course C263. Undergraduate students may read all works in translation. P/NP or letter grading.

C164. *Modern European Novel.* (5) Seminar, three hours. Designed for upper division literature majors. Study of modern European novel's development from 19th to 21st century. Use of authors such as Hardy, Strindberg, Lagerkvist, Gide, Proust, Mann, Joyce, Kafka, Woolf, Nabokov, Grass, Christa Wolf, and Enquist to focus on development of themes such as shifting authority, gender conflicts, change versus stability, formal experimentation, and self-consciousness in narrative. May be concurrently scheduled with course C264. Undergraduate students may read all works in translation but are encouraged to read in original language whenever possible. P/NP or letter grading.

M165. *Holocaust in Literature.* (4) (Same as Jewish Studies M187.) Lecture, three hours. Investigation of how Holocaust informs variety of literary and cinema works and raises wide range of aesthetic and moral questions. P/NP or letter grading.

M166. *Modern Jewish Literature in English: Diaspora Literature.* (4) (Same as Jewish Studies M151A.) Lecture, three hours. Study of literary responses of Jews to modernity, its challenges, and threats. Readings in texts originally written in English or translated from Hebrew, Yiddish, German, Russian, French, and Italian. Analysis of formal aspects of each work. P/NP or letter grading.

M167. *Modern Arabic Literature in English.* (4) (Same as Arabic M151.) Lecture, three hours. Designed for upper division literature majors. Topics may include constructions of otherness in modern Arab culture; East-West debate; memory, trauma, and mourning; violence, narrative, and ethics; globalization, oil, and cultural insurgency; Arab culture in transnational context or questions of reception, exoticism, translation, and marketing. Genres may include prison narratives; novel of terror; memoirs by women and/or by refugees and exiles; 19th- and 20th-century travel narratives; Arabic romantic poetry; literature of pre-1948; rise of Arab novel. Areas may range from generic look at Arab world to narrow focus on Maghreb or one country such as Algeria, Palestine, Iraq, Lebanon,

or Egypt. May also be organized around Arab literatures written in one specific language, namely English, Arabic, or French. Letter grading.

M168. *Korean American Literature.* (4) (Same as Asian American Studies M132B.) Seminar, three hours. Comprehensive introduction to Korean American literature, with emphasis on Korean American experience, problems of gender, race, and class, nationalism, generational relationships, and impact of traditional Korean culture on Korean American literature. P/NP or letter grading.

169. *Continental African Authors.* (4) Lecture, three hours. Requisite: one course from 1A, 1B, 1C, 2AW, 2BW, 2CW, or English Composition 3 or 3H. Introduction to new set of African authors and attempt to discern similarities or differences they may have with major authors such as Achebe, Ngugi, Armah, Soyinka, etc. P/NP or letter grading.

CM170. *Alternate Traditions: In Search of Female Voices in Contemporary Literature.* (5) (Formerly numbered M170.) (Same as Women's Studies CM170.) Seminar, three hours. Designed for upper division literature majors. Investigation of narrative texts by contemporary French, German, English, American, Spanish American, African, and Asian women writers from cross-cultural perspective. Common themes, problems, and techniques. Concurrently scheduled with course CM270. P/NP or letter grading.

M171. *Chinese Immigrant Literature and Film.* (4) (Same as Asian American Studies M130B and Chinese M153.) Lecture, three hours; discussion, one hour. Knowledge of Chinese not required. In-depth look at Chinese immigrant experience by reading literature and watching films. Theories of diaspora, gender, and race to inform thinking and discussion of relevant issues. P/NP or letter grading.

C172. *Postmodern Novel.* (4) Seminar, three hours. Designed for upper division literature majors. Study of postmodern novel as it developed out of modernism. Postmodernism defined in three different ways—philosophically, scientifically, and economically. Emphasis on relationship of recent novels to theories of structuralism and poststructuralism. Readings include authors such as Borges, Beckett, Nabokov, Pynchon, Fuentes, Grass, Böll, and Calvino. Concurrently scheduled with course C272. Undergraduate students read all works in translation. P/NP or letter grading.

C173. *Postmodernism and Third World.* (4) Seminar, three hours. Exploration of intersection between concepts of postmodernism and Third World culture and politics, including topics such as post-Marxism and revolution; historical thought; gender, ethnicity, imperialism, and their relationship to cultural politics; and recent Latin American literary production. Concurrently scheduled with course C273. P/NP or letter grading.

M175. *Race, Gender, Class.* (5) (Same as Asian American Studies M165.) Seminar, three hours. Theoretical and literary readings combined to explore three main aspects of social and cultural experience (race, gender, class) as separate but interconnected spheres affecting both minority and majority populations in U.S. Examination of these issues from comparative perspectives. P/NP or letter grading.

M176. *Literature and Technology.* (4) (Same as Japanese M156.) Lecture, three hours. Knowledge of Japanese not required. Examination of representation of technology in 20th-century fiction. Discussion of impact of technology on shifting images of gender, subjectivity, and national identity. P/NP or letter grading.

177. *Comparative Literature of Francophone and Anglophone Caribbean.* (5) Seminar, three hours. Designed for juniors/seniors. Introduction to literature and culture of Caribbean basin from New Orleans to Haiti, Martinique, Guadeloupe, Jamaica, Antigua, or Trinidad. Topics include history of French and English colonial influences and rivalries, Haitian revolution and its literary legacies, emergence of nationalist discourses, search for cultural identity, rhetoric of negritude, global poetics of relation, créolité movement, and literary achievements of African diaspora. P/NP or letter grading.

C178. India Ink: Literature and Culture of Modern South Asia. (5) Seminar, three hours. Survey of significant issues in history of 20th-century Indian literature and culture. Great works of modern Indian culture by such figures as Rabindranath Tagore, Satyajit Ray, Faiz Ahmed Faiz, and U.R. Anantha Murthy, including novels, short stories, poetry, films, music, and works in cultural criticism and historical scholarship. Central and defining issue for 20th-century Indian culture is experience of British colonial rule and massive cultural and material changes that accompanied it. Exploration of manner in which literature and culture have developed in interaction with powerful social forces, such as struggle for national independence from Britain under leaders like Mahatma Gandhi and expansion of Indian diaspora. Concurrently scheduled with course C278. P/NP or letter grading.

C187. Reading across Culture. (5) Seminar, three hours. What is it we do when we try to understand words, habits, gestures, and beliefs not our own? Do we understand something foreign to us by immersing ourselves in it or by standing apart? Does ability to understand something foreign imply taking universal standpoint? Can we make judgments about beliefs other than our own? Questions of cultural interpretation have long history in both Western and non-Western cultures. Discussion of history of questions about cross-cultural interpretation and comparative interpretation of cultures in both comparative literature and cultural anthropology. Reading of some very complex and influential works by such writers as Claude Lévi-Strauss, Amitav Ghosh, James Clifford, Edward Said, Gayatri Spivak, and Erich Auerbach. Concurrently scheduled with course C287. P/NP or letter grading.

190. Research Colloquia in Comparative Literature. (2) Seminar, three hours. Designed to bring together students undertaking supervised tutorial research in seminar setting with one or more faculty members to discuss their own work or related work in discipline. Led by one supervising faculty member. May be repeated for credit. P/NP grading.

191. Variable Topics in Comparative Literature. (4) Seminar, three hours. Designed for juniors/seniors. Study and discussion of limited periods and specialized issues and approaches in literary theory, especially in relation to other modes of discourse such as history, philosophy, psychology, linguistics, anthropology. Development of culminating project required. Consult *Schedule of Classes* for topics to be offered in specific term. May be repeated for credit with topic change. P/NP or letter grading.

197. Individual Studies in Comparative Literature. (2 to 4) Tutorial, three hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

198. Honors Research in Comparative Literature. (2 to 4) Tutorial, three hours. Limited to senior comparative literature honors students. Development and completion of honors thesis or comprehensive project on comparative topic selected by student and written under supervision of core faculty member. Students expected to meet regularly with supervisor throughout term. No more than one course may be used to fulfill four-course requirement for Comparative Literature majors. May be repeated once for maximum of 8 units. Individual contract required. Letter grading.

199. Directed Research or Senior Project in Comparative Literature. (2 to 4) Tutorial, three hours. Requisite: course 100. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit with consent of chair. Individual contract required. P/NP or letter grading.

Graduate Courses

200A. Theory of Comparative Literature. (6) Seminar, three hours. Study of theory of literature, with emphasis on genealogy of theoretical problems. S/U or letter grading.

200B. Methodology of Comparative Literature. (6) Seminar, three hours. Requisite: course 200A. Study of methodology of comparative literature, with emphasis on its history. S/U or letter grading.

202. Classical Tradition: Epic, Tragedy, or Comedy. (4) Seminar, three hours. Preparation: reading knowledge of Greek, Latin, or Italian. Analysis of Greek and Roman works and their re-creations in Renaissance and modern periods. Emphasis on how poets build on work of their predecessors. Reading may range from *Iliad* or *Odyssey* to tragedies by Sophocles and Euripides or satires by Aristophanes. S/U or letter grading.

C205. Comic Vision. (4) Lecture, three hours. Preparation: reading knowledge of one appropriate foreign language. Literary masterpieces, both dramatic and nondramatic, selected to demonstrate varieties of comic expression. May be concurrently scheduled with course C105. Graduate students required to prepare papers based on texts read in original languages and to meet as group one additional hour each week. S/U or letter grading.

206. Archetypal Heroes in Literature. (4) Seminar, three hours. Preparation: reading knowledge of one appropriate foreign language. Survey and analysis of function and appearance of such archetypal heroes as Achilles, Ulysses, Prometheus, Oedipus, and Orpheus in literature from antiquity to modern period. S/U or letter grading.

210. Comparative Studies in Autobiography. (5) Seminar, three hours. Limited to graduate students. Introduction to theories of autobiography and subjectivity and to genre of autobiography in literatures in French and English and across centuries. Topics include early modern approaches to self-writing, Rousseau and emergence of modern self, women's autobiography, postcolonial autobiography, cultural studies and turn to personal, fictions of self-representation, serial autobiography, and virtual selves. Theorists may include Georges Gusdorf, Philippe Lejeune, Paul de Man, Jacques Derrida, Helene Cixous, Michel Foucault, Pierre Bourdieu, and Toril Moi. S/U or letter grading.

C222. Renaissance Drama. (4) Lecture, three hours. Preparation: reading knowledge of one appropriate foreign language. Broad introduction to subject matter and types of plays in Renaissance, with consideration of historical and literary influences on plays. Readings include works of such dramatists as Tasso, Machiavelli, Lope de Vega, Racine, Jonson, Shakespeare. May be concurrently scheduled with course C122. Graduate students required to prepare papers based on texts read in original languages and to meet as group one additional hour each week. S/U or letter grading.

M251. Literatures and Cultures of Maghreb. (4) (Same as Arabic M255.) Seminar, three hours. Limited to graduate students. Examination of traditionally diverse literatures of Maghreb in their multiple and competing contexts of language and gender politics, religious and cultural formations, Pan-Arabism and postcolonial nationhood, Third-Worldism and economic development, modernity and globalization, immigration and citizenship, soccer industry and Rai music, mass media and Star Academy Maghreb, and more. Readings of literatures in English and in English translations from different Maghrebian languages (particularly Arabic and French) in conjunction with theories of language and linguistic pluralism, cultural translation, deconstruction, and host of other relevant theories of gender, globalization, and postcolonial cultural studies. S/U or letter grading.

C252. Symbolism and Decadence. (5) Seminar, four hours. Preparation: reading knowledge of French. Study of symbolist and decadent movements in 19th- and 20th-century English and French poetry and prose, including authors such as Baudelaire, Rim-

baud, Verlaine, Mallarmé, Wilde, Yeats, and Eliot. May be concurrently scheduled with course C152. Graduate students required to prepare papers based on texts read in original languages and may meet as group one additional hour each week. S/U or letter grading.

C253. Post-Symbolist Poetry and Poetics. (5) Seminar, four hours. Study of specific poets and poetics related to them during first half of 20th century. Texts may include poets such as W.B. Yeats, Ezra Pound, T.S. Eliot, Paul Valéry, R.M. Rilke, Gunnar Ekelöf, and Wallace Stevens. May be concurrently scheduled with course C153. Graduate students may meet as group one additional hour each week. S/U or letter grading.

C255. Hemispheric Exchanges. (5) Lecture, three hours. In "Reading North by South," Neil Larsen claims that North American interest in Latin American Boom literature was of sinister intent, being largely product of U.S. Cold War politics, investing in fiction that could produce images of areas ripe for development. From poetry perspective, dynamic was quite different. In 1930s, North American poets became involved in labor of love, reading, circulating, and translating recent or contemporaneous poetry by their counterparts to south, producing *lingua franca* with unexplored consequences for poetry north and south of border. Study of poetry translations by writers from both hemispheres and examination of consequences of these preliminary translations for later development of poetry on both sides of continental divide. Concurrently scheduled with course C155. Graduate students may meet as group one additional hour each week. S/U or letter grading.

C256. Fantastic Fictions. (4) Seminar, three hours. Time and again in modern literature, corpses become conduits or catalysts for revelation. What are ghosts that fiction frequently cannot put to rest, and what is their connection to national history or nation language or narrative? Readings from James Joyce, John Banville, Henry James, Toni Morrison, Adolfo Bioy Casares, Juan Carlos Onetti, Juan Rulfo, and Carlos Fuentes, with films by Alejandro Amenabar, Andrei Tarkovsky, and Kenji Mizoguchi. May be concurrently scheduled with course C156. Graduate students have additional meetings and theoretical readings by Benjamin, Freud, Barthes, Derrida, Rabate, Rickels, and Caruth. S/U or letter grading.

C257. Memory and Forgetting. (5) Seminar, four hours. Reading of theoretical accounts of nature of traumatic memory and consideration of relationship between memory and history, meanings of both writing and reading about traumatic events, and discussion of ethical (personal and communal) commitment to memory. Reading of memoirs of survivors and questioning of importance of authenticity in regard to representations of past. Is memory necessarily based on actual past? What is role of testimony in maintenance of collective memory? How is value of testimony judged? What are criteria on which authenticity is claimed? Concurrently scheduled with course C157. Graduate students required to give 20-minute presentation as basis for seminar paper. S/U or letter grading.

C260. Literature and Visual Arts. (4) Lecture, three hours. Knowledge of art history valuable but not required. Assuming that literature and visual arts are in some degree expressions of cultural and philosophical patterns of eras, study of relationships between writers and movements in painting, architecture, and sculpture. Interdisciplinary investigation of similarities and differences between plastic and verbal arts in comparative study. May be repeated for credit with instructor and/or topic change. May be concurrently scheduled with course C160. Graduate students required to read works in original languages. S/U or letter grading.

C261. Fiction and History. (4) Seminar, three hours. Analysis of use of historical events, situations, and characters in literary works of Renaissance and/or modern period. Texts and individual assignments range from Renaissance historical narratives (Italian humanists, Machiavelli) to 19th- and 20th-century novels by authors such as Stendhal, Verga, Tomasi di

Lampedusa, Carpentier, and Kundera. Use of fictional methods by historians. Emphasis on how aesthetic, ideological, and political factors influence authors' choice and use of historical material. May be concurrently scheduled with course C161. Graduate students required to prepare papers based on texts read in original languages. S/U or letter grading.

C263. Crisis of Consciousness in Modern Literature. (5) Seminar, three hours. Preparation: reading knowledge of one appropriate foreign language. Study of modern European and American works that are concerned both in subject matter and artistic methods with growing self-consciousness of human beings and their society, with focus on works of Kafka, Rilke, Woolf, Sartre, and Stevens. May be concurrently scheduled with course C163. Graduate students required to prepare papers based on texts read in original languages and to meet as group one additional hour each week. S/U or letter grading.

C264. Modern European Novel. (5) Seminar, three hours. Preparation: reading knowledge of at least one appropriate foreign language. Study of modern European novel's development from 19th to 21st century. Use of authors such as Hardy, Strindberg, Lagerkvist, Gide, Proust, Mann, Joyce, Kafka, Woolf, Nabokov, Grass, Christa Wolf, and Enquist to focus on development of themes such as shifting authority, gender conflicts, change versus stability, formal experimentation, and self-consciousness in narrative. May be concurrently scheduled with course C164. Graduate students required to prepare papers based on texts read in original languages whenever possible and to meet one additional hour each week. S/U or letter grading.

266. Writing and Photographic Image. (4) Seminar, three hours. Preparation: knowledge of one appropriate foreign language. Designed for graduate students. Investigation of intertextual relations between writing and photography in American and European contexts. Study rests on premise that photograph enters public domain framed by writing and discourse and that, in turn, some forms of writing are framed by photographic modes of representation. S/U or letter grading.

267. Comparative Arab Studies. (5) Seminar, three hours. Limited to graduate students. Investigation of ways in which Arab *littérateurs*, artists, and intellectuals have perseveringly sought to imagine and construct viable structures of cultural empowerment on pyre of political project of Arab nationalism and in growing response to globalization and consolidation of Western colonial and imperial ideologies in Arab world. Particular attention to technical and experimental modes of expression through which Arab artists working in different genres have engaged with some persistent and recurrent questions related to their mission, vocation, and commitment (*iltizam*) to fundamental concerns of Arab world, to responsible mimetic urgency, and to general uses/potencies of rhetoric and poetics within contexts of profound asymmetries of power, temporalities, and actualities. S/U or letter grading.

CM270. Alternate Traditions: In Search of Female Voices in Contemporary Literature. (5) (Same as Women's Studies CM270.) Seminar, four hours. Designed for graduate students. Investigation of narrative texts by contemporary French, German, English, American, Spanish American, African, and Asian women writers from cross-cultural perspective. Common themes, problems, and techniques. Concurrently scheduled with course CM170. S/U or letter grading.

271. Imaginary Women. (4) Seminar, three hours. Preparation: reading knowledge of one appropriate foreign language. Examination of archetypal female figures in classical/traditional literatures and their reinventions in modern African American, Anglo-American, Asian American, European, Native American, and Spanish-American literatures. Particular emphasis on position of women in cultures and ideology of authors. S/U or letter grading.

C272. Postmodern Novel. (4) Seminar, three hours. Preparation: reading knowledge of one appropriate foreign language. Study of postmodern novel as it developed out of modernism. Postmodernism defined in three different ways—philosophically, scientifically,

and economically. Emphasis on relationship of recent novels to theories of structuralism and poststructuralism. Readings include authors such as Borges, Beckett, Nabokov, Pynchon, Fuentes, Grass, Böll, and Calvino. Concurrently scheduled with course C172. Graduate students required to meet as group one additional hour each week. S/U or letter grading.

C273. Postmodernism and Third World. (4) Seminar, three hours. Preparation: reading knowledge of one appropriate foreign language. Exploration of intersection between concepts of postmodernism and Third World culture and politics, including topics such as post-Marxism and revolution; historical thought; gender, ethnicity, imperialism, and their relationship to cultural politics; and recent Latin American literary production. Concurrently scheduled with course C173. S/U or letter grading.

M274. Theorizing Third World. (4) (Same as Asian American Studies M261.) Seminar, three hours. Investigation of politics of power, gender, and race in complex relationships between so-called First World and Third World, using both theoretical and textual approaches. S/U or letter grading.

275. Nationalism and Immigration Today. (4) Seminar, three hours. Preparation: knowledge of one appropriate foreign language. Designed for graduate students. Literary and social discourses on issues of nationalism, immigration, and politics of identity in our postcolonial era, with consideration of broad range of texts (aesthetic representations, theoretical reflections, and legal documents). S/U or letter grading.

M276. Reading Modern Bodies. (4) (Same as Japanese M276.) Seminar, three hours. Designed for graduate students. Exploration of construction of human body through various modern technologies and discourses, including those of disease, diet, race, gender, and sexuality. Examination of texts from variety of locales, with particular emphasis on Japan. S/U or letter grading.

277. Caribbean Literature from Negritude to Diaspora. (4) Seminar, three hours. Historical approach to modern Anglophone and Francophone Caribbean literature, retracing search for cultural identity, beginning with negritude movement's claim to Africa as expressed in Aime Cesaire's classic poem *Cahier d'un retour au pays natal* and ending with consideration of dispersion of identities in work of writers and intellectuals who contend with problem of diasporic Caribbean culture. S/U or letter grading.

C278. India Ink: Literature and Culture of Modern South Asia. (5) Seminar, three hours. Survey of significant issues in history of 20th-century Indian literature and culture. Great works of modern Indian culture by such figures as Rabindranath Tagore, Satyajit Ray, Faiz Ahmed Faiz, and U.R. Anantha Murthy, including novels, short stories, poetry, films, music, and works in cultural criticism and historical scholarship. Central and defining issue for 20th-century Indian culture is experience of British colonial rule and massive cultural and material changes that accompanied it. Exploration of manner in which literature and culture have developed in interaction with powerful social forces, such as struggle for national independence from Britain under leaders like Mahatma Gandhi and expansion of Indian diaspora. Concurrently scheduled with course C178. S/U grading.

279. Subaltern Studies: Colonial Histories and Cultural Critique. (5) Seminar, three hours. Examination of certain links between practice of cultural criticism and problems in historiography of colonial and postcolonial societies. Use of key texts by members of Subaltern Studies collective of Indian historians to explore some central issues arising from this relationship. What kind of interdisciplinary space is produced by dialog of history and literary and cultural theory? Attention to literary texts to practice such interdisciplinary criticism. Nature of "modernity" in colonial setting. What is nature of bourgeoisie in colonial society? What kind of modernization does it seek? What is relationship of modern metropolitan bourgeoisie to indigenous one? S/U or letter grading.

280. Latin American Literature in Comparative Contexts. (4) Seminar, three hours. Preparation: reading knowledge of one foreign language. In-depth study of one topic of Latin American literature in comparative context. May be repeated for credit. S/U or letter grading.

284. Theories of Translation. (4) Seminar, three hours. Examination of various approaches to concept of translation and to its significance for literary studies. Readings include authors such as Matthew Arnold, Walter Benjamin, George Steiner, and Susan Bassnett. S/U or letter grading.

285. Translation Workshop. (4) Seminar, three hours. Preparation: solid reading knowledge of at least one foreign language. Open to qualified undergraduates with proper language preparation. Theory and practice of literary translation. Analyses of significant theoretical contributions to field. Weekly exercises in translation technique with genres, periods, and authors at discretion of participants. S/U or letter grading.

286. Workshop: Social Sciences Translation. (4) Seminar, three hours; tutorial, one hour. Preparation: solid reading knowledge of at least one foreign language. Designed for graduate social sciences students. Techniques students need to render scholarly texts in their fields from language they use in their research into English and to advance their knowledge of language to stage where they can use it more effectively in all aspects of their research, as well as take advantage of translation techniques they have learned. S/U or letter grading.

C287. Reading across Culture. (5) Seminar, three hours. What is it we do when we try to understand words, habits, gestures, and beliefs not our own? Do we understand something foreign to us by immersing ourselves in it or by standing apart? Does ability to understand something foreign imply taking universal standpoint? Can we make judgments about beliefs other than our own? Questions of cultural interpretation have long history in both Western and non-Western cultures. Discussion of history of questions about cross-cultural interpretation and comparative interpretation of cultures in both comparative literature and cultural anthropology. Reading of some very complex and influential works by such writers as Claude Lévi-Strauss, Amitav Ghosh, James Clifford, Edward Said, Gayatri Spivak, and Erich Auerbach. Concurrently scheduled with course C187. S/U or letter grading.

289. Theory of Film and Literature. (5) Seminar, three hours; film screening, two hours. Study of definition and aims of theories of film and literature. Approaches vary by instructor (e.g., postcoloniality, psychoanalysis, semiotics, transnationalism, gender theory). S/U or letter grading.

290. Contemporary Theories of Criticism. (4) Seminar, three hours. Prerequisite: course 200A. Advanced course in theory of literature focusing on structuralist, psychoanalytic, and Marxist approaches. S/U or letter grading.

291. Problems in Theory of Literature. (4) Seminar, three hours. Preparation: reading knowledge of French or German. Prerequisite: course 290. Study of specific topics in theory of literature for advanced students in criticism and literary theory. May be repeated for credit. S/U or letter grading.

292. Theories of Empire. (4) Seminar, three hours. History of theorizations of modern imperialism and colonialism since relevant writings of Karl Marx and Friedrich Engels. Examination of number of landmark theories of empire and consideration of whether or not they may be said to constitute coherent tradition or line of theoretical development. Question of resistance to imperial rule and role it plays in these theoretical accounts. S/U or letter grading.

M294. Seminar: Literary Theory. (5) (Same as Asian M251, English M270, French M270, German M270, Italian M270, Scandinavian M270, and Spanish M294.) Seminar, three hours. Advanced interdisciplinary seminar to explore philosophical, historical, and critical foundations of literary theory as well as current issues in literary and cultural studies. S/U or letter grading.

297. Death and Limits of Representation. (4) Seminar, three hours. Preparation: reading knowledge of one appropriate foreign language. Examination of fundamental shifts in relationship that obtains between thinking and death which are closely tied to rethinking of status and structure of representation. May be repeated once for credit. S/U or letter grading.

299. Aesthetics and Literature. (4) Seminar, three hours. Preparation: reading knowledge of one appropriate foreign language. Study of literary theory through exploration of approaches to literature by philosophers grounded on analytic tradition. Careful attention to concepts of truth, meaning, expression, representation, metaphor, fiction, and literature. Letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Preparation for Teaching Literature and Composition. (4) Seminar, three hours. Seminar on problems and methods of presenting literary texts as exemplary materials in teaching of composition. Deals with theory and classroom practice and involves individual counseling and faculty evaluation of teaching assistants' performance. May not be applied toward M.A. course requirements. S/U grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. Directed Individual Study or Research. (2 to 12) Tutorial, to be arranged. Limited to graduate comparative literature students. Necessary for students in comparative literature who need additional individual study and research. May be repeated for credit. S/U grading.

596X. Directed Individual Study. (2 to 4) Tutorial, to be arranged. Preparation for foreign language examination. S/U grading.

597. Preparation for M.A. and Ph.D. Examinations. (2 to 12) Tutorial, to be arranged. Limited to graduate students. Preparation for M.A. comprehensive examination or Ph.D. qualifying examinations. May be repeated for credit. S/U grading.

599. Research for Ph.D. Dissertation. (2 to 12) Tutorial, to be arranged. Limited to Ph.D. students. Research for and preparation of Ph.D. dissertation. May be repeated for credit. S/U grading.

Christopher J. Lee, Ph.D. (*Chemistry and Biochemistry*)

Matteo Pellegrini, Ph.D. (*Molecular, Cell, and Developmental Biology*)

Marc A. Suchard, M.D., Ph.D. (*Biostatistics, Human Genetics*)

Scope and Objectives

The major in Computational and Systems Biology is designed primarily for highly motivated undergraduate students interested in interdisciplinary studies in life sciences, behavioral sciences, and engineering and computer sciences. Preparation for the major consists of a broad foundation in basic sciences—chemistry, biology, physics, and mathematics, plus an introduction to computing. The major itself provides foundations in mathematical modeling, information processing, and control and system analysis, with an emphasis on quantitative ideas and methodologies. Mathematical and other analytical skills are essential in the major.

Computational and Systems Biology majors have several options for in-depth studies: a coherent integration of courses selected from one of five designated concentrations in bioinformatics, biomedical systems, computers and biosystems, neurosystems, or systems biology. The major is appropriate preparation for employment or for graduate studies in any of these areas, with emphasis on interdisciplinary activities. It is also appropriate preparation for professional school studies in dentistry, engineering, management, medicine, and public health.

Undergraduate Study

Computational and Systems Biology majors select a coherent integration of courses from one of five designated concentrations: bioinformatics, biomedical systems, computers and biosystems, neurosystems, or systems biology. The synergy for all concentrations is integrative systems, information, and computational systems modeling sciences in biology. The focus is primarily quantitative, as mastery of advanced quantitative skills is essential for multidisciplinary understanding. Each concentration emphasizes different systems or modalities, and modeling or other computational approaches. For students interested in broad options for postgraduate studies in life sciences and related areas, including medicine, the systems biology concentration covers the widest spectrum of quantitative systems studies at all levels. The other concentrations are more focused. For example, bioinformatics is more focused on computational aspects of genetics and biology at molecular and cellular levels. Students normally select one, but because the concentrations have substantial methodologic overlap, well-justified combinations are also possible.

The bioinformatics concentration is designed for students interested in computational discovery and management of biological data, primarily genomic, proteomic, or metabolomic data. Bioinformatics emphasizes computational, statistical, and other mathematical approaches for mining, modeling, and analyzing

high-throughput biological data, and the inherent structure of biological information. Example research problems include finding statistical patterns that reveal genomic or evolutionary or developmental information, or how regulatory sequences give rise to programs of gene expression, or how the genome encodes the capabilities of the human mind.

The biomedical systems concentration is designed for students interested primarily in medical system studies, the systems aspects of biomedical, surgical, or other biomedical engineering system devices, including MEMS or nanoscale system devices, and use of dynamic biosystem modeling for optimizing or developing new clinical diagnostic or therapeutic protocols. Example research problems include feedback biocontrol system model development for imaging-based medical diagnosis and optimal control of therapeutic drug delivery.

The computers and biosystems concentration is designed for students interested primarily in computer hardware, software, data management, data representation, graph theory, computational algorithm, or artificial intelligence applications in biological sciences, medicine, or pharmacology. Research problems are typically algorithm oriented and/or involve graphs, automata, or software development. Examples include algorithmic or graph-theory based studies for managing genomics data, development of knowledge-based systems (KBS) for delivering patient education, and KBS for automating complex biosystem modeling tasks.

The neurosystems concentration is designed for students interested primarily in the nervous system, or quantitative neurophysiology, with emphasis on neural system networks that control behavior at molecular, cellular, and whole-organism levels, neural information and control systems, and systems electrophysiology and neural electronic systems for controlling prostheses. Example research problems include analysis of (real) neural networks in normal and abnormal brain function, design of prosthetic systems for hearing (cochlear implant) and walking (spinal cord stimulation) recovery, and MEMS-based brain-machine interface devices.

The systems biology concentration is designed for students who want to understand biological systems holistically and quantitatively, and pursue research with an emphasis on systems and integrative principles in biology or medicine. The curriculum imparts an understanding of systems biology (often called the new physiology) using dynamical systems modeling, control, computer simulation, and other computational methods—integrated with the biology. For example, at the cellular level, systems biologists integrate proteomic, transcriptomic, and metabolomic information into a more complete systems picture of living organisms. However, the methodologies include single-scale or multiscale modeling for enhancing understanding of regulatory biomechanisms at all levels—molecular, cellular, organ, and/or whole-organism levels—and are prevalent in population and

COMPUTATIONAL AND SYSTEMS BIOLOGY

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Joseph J. DiStefano III, Ph.D., *Chair*
Thomas Chou, Ph.D., *Vice Chair*
Marc A. Suchard, M.D., Ph.D., *Vice Chair*

Faculty Administrative Committee

Thomas Chou, Ph.D. (*Biostatistics, Mathematics*)
Joseph J. DiStefano III, Ph.D. (*Computer Science, Medicine*)
Elliot M. Landaw, M.D., Ph.D. (*Biostatistics*)

ecosystem studies, as well as systems-level problems in medicine and pharmacology.

Computational and Systems Biology B.S.

Computational and Systems Biology Premajor

Students entering UCLA directly from high school and first-term transfer students who declare the Computational and Systems Biology premajor at the time of application are automatically admitted. Current UCLA students need to file a petition with the Undergraduate Advising Office in 4436 Boelter Hall to declare the premajor. All students are then identified as premajors until they (1) satisfy the preparation for the major requirements and (2) file a petition to declare the Computational and Systems Biology major.

Preparation for the Major

Required: A minimum of 81 to 83 units (depending on the computer programming course and physics sequence selected), including Chemistry and Biochemistry 20A, 20B, 20L, 30A, 30AL; Computer Science 31 or Program in Computing 10A; Life Sciences 2, 3, 4; Mathematics 31A, 31B, 32A, 32B, 33A, 33B, 115A; Physics 1A, 1B, and 1C (or Electrical Engineering 1), or 1AH, 1BH, and 1CH. For the bioinformatics concentration, Computer Science 32 and 180, or Program in Computing 10B, 10C, and 60 are also required; for the computers and biosystems concentration, Computer Science 32, 33, and 180, or Program in Computing 10B, 10C, 30, and 60 are also required.

Transfer Students

Transfer applicants to the Computational and Systems Biology major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: one year of general chemistry with laboratory for majors, two years of calculus for majors, one year of calculus-based physics, one year of biology with laboratory for majors, one psychology course, and one programming course using C++.

Transfer applicants must meet the same academic requirements as current UCLA students, based on all courses transferred from another institution that satisfy premajor requirements, and must have completed one 12-unit term of residence in regular session at UCLA.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Admission to the major is by petition only and is based on successful completion of all preparation for the major courses and requirements (2.7 grade-point average in mathematics, 3.0 GPA overall, and a minimum grade of C in each preparation for the major course).

The major consists of a methodology core of six courses (23 units), a concentration of six to

seven upper division courses (24 or 28 units minimum), and a one-course capstone research requirement (4 units). Each course in the major must be passed with a grade of C or better.

Methodology Core

Required: One overview course, one modeling and simulation of biological systems course, and two subject areas as follows:

1. One overview course: Computational and Systems Biology M184
2. One modeling and simulation of biological systems course: Computational and Systems Biology M186B
3. Two courses in probability and statistics from one of the following groups: (a) Statistics 100A and 100B or (b) Mathematics 170A and Statistics 100B or (c) Electrical Engineering 131A and Statistics 100B
4. Two courses in signals, systems, and control systems: (a) Electrical Engineering 102 and (b) Electrical Engineering 141 or Mechanical and Aerospace Engineering 171A

Concentrations

Required: A minimum of five courses (20 to 30 units) from the concentrations listed below. No 199 course may be applied toward any concentration. An approved list of courses for each concentration is available in the program office and at <http://www.cs.ucla.edu/C&SB/>.

Bioinformatics (at least 20 units): Five courses selected from the bioinformatics approved list. Note: Computer Science 32 and 180, or Program in Computing 10B, 10C, and 60 are completed in the premajor.

Biomedical Systems (at least 24 units): Six courses selected from the biomedical systems approved list.

Computers and Biosystems (at least 20 units): Five courses selected from the computers and biosystems approved list. Note: Computer Science 32, 33, and 180, or Program in Computing 10B, 10C, 30, and 60 are completed in the premajor.

Neurosystems (24 units): Neuroscience M101A, M101B, 102, and at least 10 units from the neurosystems approved list.

Systems Biology (at least 24 units): Molecular, Cell, and Developmental Biology 100, 144, Biomedical Engineering CM102/CM103 or Ecology and Evolutionary Biology 170 or Physiological Science 166, and at least two courses (minimum of 8 units) from the systems biology approved list.

Capstone Research Requirement

Required: Computational and Systems Biology 185, to be taken in the junior or senior year after completion of course M184.

Honors Program

Junior and senior majors who have completed all preparation for the major courses and have an overall grade-point average of 3.0 or better

and a 3.5 or better in required major courses may apply for admission to the honors program. Students are required to take Computational and Systems Biology M186B with a corequisite adjunct honors course (189 or 189HC). Students pursuing highest honors must, in addition, complete a senior thesis (Computational and Systems Biology 198) based on an approved research topic. Those who successfully complete the program (3.0 GPA or better overall, 3.5 or better in major coursework, and a grade of B or better in the honors adjunct course of Computational and Systems Biology M186B or other contracted honors coursework) are awarded a degree with honors. At the discretion of the faculty sponsor and the interdepartmental committee, students demonstrating exceptional ability on the senior research thesis are awarded highest honors.

Computational and Systems Biology

Upper Division Courses

M184. Introduction to Computational and Systems Biology. (2) (Formerly numbered M186A.) (Same as Biomedical Engineering M184 and Computer Science M184.) Lecture, two hours; outside study, four hours. Requisites: Computer Science 31 (or Program in Computing 10A), Mathematics 31A, 31B. Survey course designed to introduce students to computational and systems modeling and computation in biology and medicine, providing motivation, flavor, culture, and cutting-edge contributions in computational biosciences and aiming for more informed basis for focused studies by students with computational and systems biology interests. Presentations by individual UCLA researchers discussing their active computational and systems biology research. P/NP grading.

185. Thesis Research Opportunities in Computational and Systems Biology. (2) Lecture, one hour; discussion, one hour; laboratory, two hours; outside study, two hours. Requisites: course M184, Mathematics 31A, 31B, 32A, 32B, 33A, 33B, Life Sciences 2, 3, 4. Introduction to research opportunities in computational and systems biology to prepare students for active engagement in research. Presentation of potential projects by faculty members and student visits to individual laboratories and participation in ongoing projects. P/NP grading.

M186B. Computational Systems Biology: Modeling and Simulation of Biological Systems. (5) (Same as Biomedical Engineering CM186B and Computer Science CM186B.) Lecture, four hours; laboratory, three hours; outside study, eight hours. Corequisite: Electrical Engineering 102. Dynamic biosystems modeling and computer simulation methods for studying biological/biomedical processes and systems at multiple levels of organization. Control system, multicompartmental, predator-prey, pharmacokinetic (PK), pharmacodynamic (PD), and other structural modeling methods applied to life sciences problems at molecular, cellular (biochemical pathways/networks), organ, and organismic levels. Both theory- and data-driven modeling, with focus on translating biomodeling goals and data into mathematics models and implementing them for simulation and analysis. Basics of numerical simulation algorithms, with modeling software exercises in class and PC laboratory assignments. Letter grading.

M186C. Biomodeling Research and Research Communication Workshop. (2 to 4) (Formerly numbered M186L.) (Same as Biomedical Engineering CM186C and Computer Science CM186C.) Lecture, one hour; discussion, two hours; laboratory, one hour; outside study, eight hours. Requisite: course M186B. Closely directed, interactive, and real research experi-

ence in active quantitative systems biology research laboratory. Direction on how to focus on topics of current interest in scientific community, appropriate to student interests and capabilities. Critiques of oral presentations and written progress reports explain how to proceed with search for research results. Major emphasis on effective research reporting, both oral and written. Letter grading.

198. Honors Research in Cybernetics. (4) Tutorial, to be arranged. Limited to juniors/seniors. Development and completion of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for credit. Individual contract required. Letter grading.

COMPUTER SCIENCE

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Professors

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Michael G. Dyer, Ph.D.
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Amit Sahai, Ph.D.
Majid Sarrafzadeh, Ph.D.
Stefano Soatto, Ph.D.
Mani B. Srivastava, Ph.D.
Demetri Terzopoulos, Ph.D.
Alan L. Yuille, Ph.D.
Carlo A. Zaniolo, Ph.D. (*Norman E. Friedmann
Professor of Knowledge Sciences*)
Lixia Zhang, Ph.D.
Song-Chun Zhu, Ph.D.

Professors Emeriti

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Rajive L. Bagrodia, Ph.D.
Bertram Bussell, Ph.D.
Jack W. Carlyle, Ph.D.
Wesley W. Chu, Ph.D.
Gerald Estrin, Ph.D.
Thelma Estrin, Ph.D.
Leonard Kleinrock, Ph.D.
Allen Klinger, Ph.D.
Lawrence P. McNamee, Ph.D.
Michel A. Melkanoff, Ph.D.
Judea Pearl, Ph.D.
David A. Rennels, Ph.D.
Jacques J. Vidal, Ph.D.

Associate Professors

Junghoo (John) Cho, Ph.D.

Eleazar Eskin, Ph.D.
Edward Kohler, Ph.D.
Songwu Lu, Ph.D.
Rupak Majumdar, Ph.D.
Todd D. Millstein, Ph.D.
Glenn D. Reinman, Ph.D.
Yuval Tamir, Ph.D.
Jennifer N. Vaughan, Ph.D.

Assistant Professors

Petros Faloutsos, Ph.D.
Adam W. Meyerson, Ph.D.
Zhuowen Tu, Ph.D.

Senior Lecturer S.O.E.

Leon Levine, M.S., *Emeritus*

Lecturers S.O.E.

Paul R. Eggert, Ph.D.
David A. Smallberg, M.S.

Adjunct Professors

Alan C. Kay, Ph.D.
Boris Y. Kogan, Ph.D.
Carey S. Nachenberg, Ph.D.
Peter S. Pao, Ph.D.
Peter L. Reiher, Ph.D.
M. Yahya Sanadidi, Ph.D.

Scope and Objectives

Computer science is concerned with the design, modeling, analysis, and applications of computer-related systems. Its study at UCLA provides education at the undergraduate and graduate levels necessary to understand, design, implement, and use the software and hardware of digital computers and digital systems. The programs provide comprehensive and integrated studies of subjects in computer system architecture, computer networks, distributed computer systems, programming languages and software systems, information and data management, artificial intelligence, computer science theory, computational systems biology and bioinformatics, and computer vision and graphics.

The undergraduate and graduate studies and research projects in computer science are supported by significant computing resources. In addition to the departmental computing facility, there are over a dozen research laboratories specializing in areas such as distributed systems, multimedia computer communications, distributed sensor networks, VLSI systems, VLSI CAD, embedded and reconfigurable systems, computer graphics, bioinformatics, and artificial intelligence. Also, the Cognitive Systems Laboratory is engaged in studying computer systems that emulate or support human reasoning. The Biocybernetics Laboratory is devoted to multidisciplinary research involving the application of engineering and computer science methods to problems in biology and medicine.

The B.S. degree may be attained either through the Computer Science and Engineering major or through the Computer Science major described below.

In addition to the B.S. in Computer Science and Engineering and the B.S. in Computer Science, HSSEAS offers M.S. and Ph.D. degrees in Computer Science, as well as minor fields for graduate students seeking engineering degrees. In cooperation with the John E. Ander-

son Graduate School of Management, the Computer Science Department offers a concurrent degree program that enables students to obtain the M.S. in Computer Science and the M.B.A. (Master of Business Administration).

Undergraduate Study

The Computer Science and Engineering and Computer Science majors are designated capstone majors. Computer Science and Engineering students complete a major product design course, while Computer Science students complete either a software engineering or major product design course. Graduates are expected to apply the basic mathematical and scientific concepts that underlie modern computer science and engineering; design a software or digital hardware system, component, or process to meet desired needs within realistic constraints; function productively with others as part of a team; identify, formulate, and solve computer software- and hardware-related engineering problems; and demonstrate effective communication skills.

Computer Science and Engineering B.S.

Capstone Major

The ABET-accredited computer science and engineering curriculum at UCLA provides the education and training necessary to design, implement, test, and utilize the hardware and software of digital computers and digital systems. The curriculum has components spanning both the Computer Science and Electrical Engineering Departments. Within the curriculum students study all aspects of computer systems from electronic design through logic design, MSI, LSI, and VLSI concepts and device utilization, machine language design, implementation and programming, operating system concepts, systems programming, networking fundamentals, higher-level language skills, and application of these to systems. Students are prepared for employment in a wide spectrum of high-technology industries.

The computer science and engineering curriculum is accredited by the Computing Accreditation Commission and the Engineering Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, (410) 347-7700.

Preparation for the Major

Required: Chemistry and Biochemistry 20A; Computer Science 1, 31, 32, 33, 35L, M51A (or Electrical Engineering M16); Electrical Engineering 1, 2, 10; Mathematics 31A, 31B, 32A, 32B, 33A, 33B, 61; Physics 1A, 1B, 4AL, 4BL.

The Major

Required: Computer Science 111, 118, 131, M151B (or Electrical Engineering M116C), M152A (or Electrical Engineering M116L), 180, 181, Electrical Engineering 102, 110, 110L, 115A, 115C, Statistics 110A; three technical breadth courses (12 units) selected from an approved list available in the Office of Aca-

demic and Student Affairs; one capstone design course (Computer Science 152B); and three upper division computer science elective courses (12 units), one of which must be selected from Computer Science 143 or 161 or 174A. The remaining two elective courses must be selected from Computer Science 112, 113, M117 (or Electrical Engineering M117), CM121 (or Chemistry and Biochemistry CM160A), CM122 (or Chemistry and Biochemistry CM160B), CM124 (or Human Genetics CM124), 130, 132, 133, 136, 143, 144, 151C, 161, 170A, M171L (or Electrical Engineering M171L), 174A, 174B, C174C, 183, M184 (or Biomedical Engineering M184 or Computational and Systems Biology M184), CM186B (or Biomedical Engineering CM186B or Computational and Systems Biology M186B), CM186C (or Biomedical Engineering CM186C or Computational and Systems Biology M186C). Electrical Engineering 103 may be substituted for one elective (credit is not given for both Computer Science 170A and Electrical Engineering 103 unless one of the courses is included in the technical breadth area); 4 units of either Computer Science 194 or 199 may be applied as an elective by petition.

For information on University and general education requirements, see the College and Schools section earlier in this catalog.

Computer Science B.S.

Capstone Major

The computer science curriculum is designed to accommodate students who want professional preparation in computer science but do not necessarily have a strong interest in computer systems hardware. The curriculum consists of components in computer science, a minor or technical support area, and a core of courses from the social sciences, life sciences, and humanities. Within the curriculum, students study subject matter in software engineering, principles of programming languages, data structures, computer architecture, theory of computation and formal languages, operating systems, distributed systems, computer modeling, computer networks, compiler construction, and artificial intelligence. Majors are prepared for employment in a wide range of industrial and business environments.

The computer science curriculum is accredited by the Computing Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, (410) 347-7700.

Preparation for the Major

Required: Chemistry and Biochemistry 20A; Computer Science 1, 31, 32, 33, 35L, M51A (or Electrical Engineering M16); Electrical Engineering 1; Mathematics 31A, 31B, 32A, 32B, 33A, 33B, 61; Physics 1A, 1B, 4AL, 4BL.

The Major

Required: Computer Science 111, 118, 131, M151B (or Electrical Engineering M116C), M152A (or Electrical Engineering M116L), 180, 181, Statistics 110A; three upper division science and technology courses (12 units) not

used to satisfy other requirements, that may include three computer science courses or three courses selected from an approved list available in the Office of Academic and Student Affairs; three technical breadth courses (12 units) selected from an approved list available in the Office of Academic and Student Affairs; one capstone software engineering or design course from Computer Science 130 or 152B; and six upper division computer science elective courses (24 units), two of which must be selected from Computer Science 143, 161, or 174A and one of which must be from 112 or 170A or Electrical Engineering 103 (credit is not given for both Computer Science 170A and Electrical Engineering 103 unless one of the courses is included in the technical breadth area). The remaining three elective courses must be selected from Computer Science 112, 113, M117 (or Electrical Engineering M117), CM121 (or Chemistry and Biochemistry CM160A), CM122 (or Chemistry and Biochemistry CM160B), CM124 (or Human Genetics CM124), 130 (unless taken as a required course), 132, 133, 136, 143, 144, 151C, 152B (unless taken as a required course), 161, 170A, M171L (or Electrical Engineering M171L), 174A, 174B, C174C, 183, M184 (or Biomedical Engineering M184 or Computational and Systems Biology M184), CM186B (or Biomedical Engineering CM186B or Computational and Systems Biology M186B), CM186C (or Biomedical Engineering CM186C or Computational and Systems Biology M186C). If students have not taken Computer Science 130, one elective course must be 132; 4 units of either Computer Science 194 or 199 may be applied as an elective by petition.

For information on University and general education requirements, see the College and Schools section earlier in this catalog.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Computer Science offers Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Computer Science. A concurrent degree program (Computer Science M.S./Management M.B.A.) is also offered.

Computer Science

Lower Division Courses

1. Freshman Computer Science Seminar. (1) Seminar, one hour; discussion, one hour. Introduction to department resources and principal topics and key ideas in computer science and computer engineering. Assignments given to bolster independent study and writing skills. Letter grading.

2. Great Ideas in Computer Science. (4) Lecture, four hours; outside study, eight hours. Broad coverage for liberal arts and social sciences students of computer science theory, technology, and implications, including artificial and neural machine intelligence, computability limits, virtual reality, cellular automata, artificial life, programming languages survey, and philosophical and societal implications. P/NP or letter grading.

31. Introduction to Computer Science I. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Introduction to computer science via theory, applications, and programming. Basic data types, operators and control structures. Input/output. Procedural and data abstraction. Introduction to object-oriented software development. Functions, recursion. Arrays, strings, pointers. Abstract data types, object-oriented programming. Examples and exercises from computer science theory and applications. Letter grading.

32. Introduction to Computer Science II. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course 31. Object-oriented software development. Abstract data type definition and use. Overloading, inheritance, polymorphism. Object-oriented view of data structures: stacks, queues, lists. Algorithm analysis. Trees, graphs, and associated algorithms. Searching and sorting. Case studies and exercises from computer science applications. Letter grading.

33. Introduction to Computer Organization. (5) Lecture, four hours; discussion, two hours; outside study, nine hours. Enforced requisite: course 32. Introductory course on computer architecture, assembly language, and operating systems fundamentals. Number systems, machine language, and assembly language. Procedure calls, stacks, interrupts, and traps. Assemblers, linkers, and loaders. Operating systems concepts: processes and process management, input/output (I/O) programming, memory management, file systems. Letter grading.

35L. Software Construction Laboratory. (2) Laboratory, four hours; outside study, two hours. Requisite: course 31. Fundamentals of commonly used software tools and environments, particularly open-source tools to be used in upper division computer science courses. Letter grading.

M51A. Logic Design of Digital Systems. (4) (Same as Electrical Engineering M16.) Lecture, four hours; discussion, two hours; outside study, six hours. Introduction to digital systems. Specification and implementation of combinational and sequential systems. Standard logic modules and programmable logic arrays. Specification and implementation of algorithmic systems: data and control sections. Number systems and arithmetic algorithms. Error control codes for digital information. Letter grading.

97. Variable Topics in Computer Science. (1 to 4) Lecture, one to four hours; discussion, zero to two hours. Designed for freshmen/sophomores. Variable topics in computer science not covered in regular computer science courses. May be repeated once for credit with topic or instructor change. Letter grading.

Upper Division Courses

101. Upper Division Computer Science Seminar. (1) Seminar, one hour; discussion, one hour. Introduction to current research, trends, emerging areas, and contemporary issues in computer science and engineering. Assignments given to bolster independent study and writing skills. Letter grading.

111. Operating Systems Principles. (4) Lecture, four hours; laboratory, two hours; outside study, six hours. Requisites: courses 32, 33, 35L. Introduction to operating systems design and evaluation. Computer software systems performance, robustness, and functionality. Kernel structure, bootstrapping, input/output (I/O) devices and interrupts. Processes and threads; address spaces, memory management, and virtual memory. Scheduling, synchronization. File systems: layout, performance, robustness. Distributed systems: networking, remote procedure call (RPC), asynchronous RPC, distributed file systems, transac-

tions. Protection and security. Exercises involving applications using, and internals of, real-world operating systems. Letter grading.

112. Computer System Modeling Fundamentals.

(4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: Statistics 100A or 110A. Designed for juniors/seniors. Probability and stochastic process models as applied in computer science. Basic methodological tools include random variables, conditional probability, expectation and higher moments, Bayes theorem, Markov chains. Applications include probabilistic algorithms, evidential reasoning, analysis of algorithms and data structures, reliability, communication protocol and queueing models. Letter grading.

113. Introduction to Distributed Embedded Systems.

(4) Lecture, four hours; laboratory, four hours; outside study, four hours. Requisites: courses 111, 118. Introduction to basic concepts needed to understand, design, and implement wireless distributed embedded systems. Topics include design implications of energy and otherwise resource-constrained nodes, network self-configuration and adaptation, localization and time synchronization, applications, and usage issues such as human interfaces, safety, and security. Heavily project based. Letter grading.

M117. Computer Networks: Physical Layer.

(6) (Same as Electrical Engineering M117.) Lecture, four hours; discussion, four hours; outside study, 10 hours. Not open to students with credit for course M171L. Introduction to fundamental data communication concepts underlying and supporting modern networks, with focus on physical and media access layers of network protocol stack. Systems include high-speed LANs (e.g., fast and giga Ethernet), optical DWDM (dense wavelength division multiplexing), time division SONET networks, wireless LANs (IEEE802.11), and ad hoc wireless and personal area networks (e.g., Bluetooth). Experimental laboratory sessions included. Letter grading.

118. Computer Network Fundamentals. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 32, 33, 35L, 111. Designed for juniors/seniors. Introduction to design and performance evaluation of computer networks, including such topics as what protocols are, layered network architecture, Internet protocol architecture, network applications, transport protocols, routing algorithms and protocols, internetworking, congestion control, and link layer protocols including Ethernet and wireless channels. Letter grading.

CM121. Introduction to Bioinformatics. (4) (Same as Chemistry CM160A.) Lecture, three hours; discussion, one hour. Enforced requisites: course 180 or Program in Computing 60 with grade of C- or better, and Biostatistics 100A or 110A or Mathematics 170A or Statistics 100A or 110A. Introduction to bioinformatics and methodologies, with emphasis on concepts and inventing new bioinformatic methods. Focus on sequence analysis and alignment algorithms. Concurrently scheduled with course CM221. P/NP or letter grading.

CM122. Algorithms in Bioinformatics and Systems Biology. (4) (Same as Chemistry CM160B.) Lecture, four hours; laboratory, four hours. Enforced requisite: course CM121 or Chemistry CM160A with grade of C- or better. Recommended: Computer Science 32 or Program in Computing 60, Statistics 100A, 110A. Development and application of computational approaches to biological questions. Understanding of mechanisms for determining statistical significance of computationally derived results. Development of foundation for innovative work in bioinformatics and systems biology. Concurrently scheduled with course CM222. Letter grading.

CM124. Computational Genetics. (4) (Same as Human Genetics CM124.) Lecture, three hours; discussion, one hour; outside study, eight hours. Preparation: one statistics course and familiarity with any programming language. Designed for undergraduate and graduate engineering students, as well as students from biological sciences and medical school. Introduction to current quantitative understanding of human genetics and computational interdisciplinary research in genet-

ics. Topics include introduction to genetics, human population history, linkage analysis, association analysis, association study design, isolated and admixed populations, population substructure, human structural variation, model organisms, and genotyping technologies. Computational techniques include those from statistics and computer science. Concurrently scheduled with course CM224. Letter grading.

130. Software Engineering. (4) Lecture, four hours; laboratory, two hours; outside study, six hours. Requisites: courses 32, 35L. Recommended: Engineering 183 or 185. Structured programming, program specification, program proving, modularity, abstract data types, composite design, software tools, software control systems, program testing, team programming. Letter grading.

131. Programming Languages. (4) Lecture, four hours; laboratory, two hours; outside study, six hours. Requisites: courses 32, 33, 35L. Basic concepts in design and use of programming languages, including abstraction, modularity, control mechanisms, types, declarations, syntax, and semantics. Study of several different language paradigms, including functional, object-oriented, and logic programming. Letter grading.

132. Compiler Construction. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 32, 35L, 131, 181. Compiler structure; lexical and syntactic analysis; semantic analysis and code generation; theory of parsing. Letter grading.

133. Parallel and Distributed Computing. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 111 (may be taken concurrently), 131. Distributed memory and shared memory parallel architectures; asynchronous parallel languages: MPI, Maisie; primitives for parallel computation: specification of parallelism, interprocess communication and synchronization; design of parallel programs for scientific computation and distributed systems. Letter grading.

136. Introduction to Computer Security. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 111, 118. Introduction to basic concepts of information security necessary for students to understand risks and mitigations associated with protection of systems and data. Topics include security models and architectures, security threats and risk analysis, access control and authentication/authorization, cryptography, network security, secure application design, and ethics and law. Letter grading.

143. Database Systems. (4) Lecture, four hours; laboratory, two hours; outside study, six hours. Requisite: course 32. Information systems and database systems in enterprises. File organization and secondary storage structures. Relational model and relational database systems. Network, hierarchical, and other models. Query languages. Database design principles. Transactions, concurrency, and recovery. Integrity and authorization. Letter grading.

144. Web Applications. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisite: course 143. Important concepts and theory for building effective and safe Web applications and first-hand experience with basic tools. Topics include basic Web architecture and protocol, XML and XML query language, mapping between XML and relational models, information retrieval model and theory, security and user model, Web services and distributed transactions. Letter grading.

M151B. Computer Systems Architecture.

(4) (Same as Electrical Engineering M116C.) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 33, and M51A or Electrical Engineering M16. Recommended: courses 111, and M152A or Electrical Engineering M116L. Computer system organization and design, implementation of CPU datapath and control, instruction set design, memory hierarchy (caches, main memory, virtual memory) organization and management, input/output subsystems (bus structures, interrupts, DMA), performance evaluation, pipelined processors. Letter grading.

151C. Design of Digital Systems. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses M51A, M151B, M152A. Design of

complex digital systems using hierarchal approaches and regular structures. Combinational, sequential, and algorithmic systems. Microprogramming and firmware engineering. Cost/performance measures and technology constraints. Use of design tools. Design project. Letter grading.

M152A. Introductory Digital Design Laboratory.

(2) (Same as Electrical Engineering M116L.) Laboratory, four hours; outside study, two hours. Requisite: course M51A or Electrical Engineering M16. Hands-on design, implementation, and debugging of digital logic circuits, use of computer-aided design tools for schematic capture and simulation, implementation of complex circuits using programmed array logic, design projects. Letter grading.

152B. Digital Design Project Laboratory.

(4) (Formerly numbered M152B.) Laboratory, four hours; discussion, two hours; outside study, six hours. Requisite: course M151B or Electrical Engineering M116C. Design and implementation of complex digital subsystems using field-programmable gate arrays (e.g., processors, special-purpose processors, device controllers, and input/output interfaces). Students work in teams to develop and implement designs and to document and give oral presentations of their work. Letter grading.

161. Fundamentals of Artificial Intelligence.

(4) Lecture, four hours; laboratory, two hours; outside study, six hours. Requisite: course 32. Introduction to fundamental problem solving and knowledge representation paradigms of artificial intelligence. Introduction to Lisp with regular programming assignments. State-space and problem reduction methods, brute-force and heuristic search, planning techniques, two-player games. Knowledge structures including predicate logic, production systems, semantic nets and primitives, frames, scripts. Special topics in natural language processing, expert systems, vision, and parallel architectures. Letter grading.

170A. Mathematical Modeling and Methods for Computer Science.

(4) Lecture, four hours; laboratory, two hours; outside study, six hours. Requisite: Mathematics 33B. Introduction to methods for modeling and simulation using interactive computing environments. Extensive coverage of methods for numeric and symbolic computation, matrix algebra, statistics, floating point, optimization, and spectral analysis. Emphasis on applications in simulation of physical systems. Letter grading.

M171L. Data Communication Systems Laboratory.

(2 to 4) (Same as Electrical Engineering M171L.) Laboratory, four to eight hours; outside study, two to four hours. Recommended preparation: course M152A. Limited to seniors. Interpretation of analog-signaling aspects of digital systems and data communications through experience in using contemporary test instruments to generate and display signals in relevant laboratory setups. Use of oscilloscopes, pulse and function generators, baseband spectrum analyzers, desktop computers, terminals, modems, PCs, and workstations in experiments on pulse transmission impairments, waveforms and their spectra, modem and terminal characteristics, and interfaces. Letter grading.

174A. Introduction to Computer Graphics.

(4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 32. Basic principles behind modern two- and three-dimensional computer graphics systems, including complete set of steps that modern graphics pipelines use to create realistic images in real time. How to position and manipulate objects in scene using geometric and camera transformations. How to create final image using perspective and orthographic transformations. Basics of modeling primitives such as polygonal models and implicit and parametric surfaces. Basic ideas behind color spaces, illumination models, shading, and texture mapping. Letter grading.

174B. Introduction to Computer Graphics: Three-Dimensional Photography and Rendering.

(4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 174A. State of art in three-dimensional photography and image-based rendering. How to use cameras and light to capture

shape and appearance of real objects and scenes. Process provides simple way to acquire three-dimensional models of unparalleled detail and realism. Applications of techniques from entertainment (reverse engineering and postprocessing of movies, generation of realistic synthetic objects and characters) to medicine (modeling of biological structures from imaging data), mixed reality (augmentation of video), and security (visual surveillance). Fundamental analytical tools for modeling and inferring geometric (shape) and photometric (reflectance, illumination) properties of objects and scenes, and for rendering and manipulating novel views. Letter grading.

C174C. Computer Animation. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 174A. Designed for juniors/seniors. Introduction to computer animation, including basic principles of character modeling, forward and inverse kinematics, forward and inverse dynamics, motion capture animation techniques, physics-based animation of particles and systems, and motor control. Concurrently scheduled with course C274C. Letter grading.

180. Introduction to Algorithms and Complexity. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: course 32, and Mathematics 61 or 180. Designed for junior/senior Computer Science majors. Introduction to design and analysis of algorithms. Design techniques: divide-and-conquer, greedy method, dynamic programming; selection of prototypical algorithms; choice of data structures and representations; complexity measures: time, space, upper, lower bounds, asymptotic complexity; NP-completeness. Letter grading.

181. Introduction to Formal Languages and Automata Theory. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: course 32, and Mathematics 61 or 180. Designed for junior/senior Computer Science majors. Grammars, automata, and languages. Finite-state languages and finite-state automata. Context-free languages and pushdown story automata. Unrestricted rewriting systems, recursively enumerable and recursive languages, and Turing machines. Closure properties, pumping lemmas, and decision algorithms. Introduction to computability. Letter grading.

183. Introduction to Cryptography. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Preparation: knowledge of basic probability theory. Requisite: course 180. Introduction to cryptography, computer security, and basic concepts and techniques. Topics include notions of hardness, one-way functions, hard-core bits, pseudorandom generators, pseudorandom functions and pseudorandom permutations, semantic security, public-key and private-key encryption, key-agreement, homomorphic encryption, private information retrieval and voting protocols, message authentication, digital signatures, interactive proofs, zero-knowledge proofs, collision-resistant hash functions, commitment protocols, and two-party secure computation with static security. Letter grading.

M184. Introduction to Computational and Systems Biology. (2) (Formerly numbered M186A.) (Same as Biomedical Engineering M184 and Computational and Systems Biology M184.) Lecture, two hours; outside study, four hours. Requisites: course 31 (or Program in Computing 10A), Mathematics 31A, 31B. Survey course designed to introduce students to computational and systems modeling and computation in biology and medicine, providing motivation, flavor, culture, and cutting-edge contributions in computational biosciences and aiming for more informed basis for focused studies by students with computational and systems biology interests. Presentations by individual UCLA researchers discussing their active computational and systems biology research. P/NP grading.

CM186B. Computational Systems Biology: Modeling and Simulation of Biological Systems. (5) (Same as Biomedical Engineering CM186B and Computational and Systems Biology M186B.) Lecture, four hours; laboratory, three hours; outside study, eight hours. Corequisite: Electrical Engineering 102. Dynamic biosystems modeling and computer simulation methods for studying biological/biomedical pro-

cesses and systems at multiple levels of organization. Control system, multicompartmental, predator-prey, pharmacokinetic (PK), pharmacodynamic (PD), and other structural modeling methods applied to life sciences problems at molecular, cellular (biochemical pathways/networks), organ, and organismic levels. Both theory- and data-driven modeling, with focus on translating biomodeling goals and data into mathematics models and implementing them for simulation and analysis. Basics of numerical simulation algorithms, with modeling software exercises in class and PC laboratory assignments. Concurrently scheduled with course CM286B. Letter grading.

CM186C. Biomodeling Research and Research Communication Workshop. (2 to 4) (Formerly numbered CM186L.) (Same as Biomedical Engineering CM186C and Computational and Systems Biology M186C.) Lecture, one hour; discussion, two hours; laboratory, one hour; outside study, eight hours. Requisite: course CM186B. Closely directed, interactive, and real research experience in active quantitative systems biology research laboratory. Direction on how to focus on topics of current interest in scientific community, appropriate to student interests and capabilities. Critiques of oral presentations and written progress reports explain how to proceed with search for research results. Major emphasis on effective research reporting, both oral and written. Concurrently scheduled with course CM286C. Letter grading.

188. Special Courses in Computer Science. (4) Lecture, four hours; outside study, eight hours. Special topics in computer science for undergraduate students taught on experimental or temporary basis, such as those taught by resident and visiting faculty members. May be repeated once for credit with topic or instructor change. Letter grading.

194. Research Group Seminars: Computer Science. (4) Seminar, four hours; outside study, eight hours. Designed for undergraduate students who are part of research group. Discussion of research methods and current literature in field or of research of faculty members or students. May be repeated for credit. Letter grading.

199. Directed Research in Computer Science. (2 to 8) Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit with school approval. Individual contract required; enrollment petitions available in Office of Academic and Student Affairs. Letter grading.

Graduate Courses

201. Computer Science Seminar. (2) Seminar, four hours; outside study, two hours. Designed for graduate computer science students. Seminars on current research topics in computer science. May be repeated for credit. S/U grading.

202. Advanced Computer Science Seminar. (4) Seminar, four hours; outside study, eight hours. Preparation: completion of major field examination in computer science. Current computer science research into theory of, analysis and synthesis of, and applications of information processing systems. Each member completes one tutorial and one or more original pieces of work in one specialized area. May be repeated for credit. Letter grading.

211. Network Protocol and Systems Software Design for Wireless and Mobile Internet. (4) Lecture, four hours; outside study, eight hours. Requisite: course 118. Designed for graduate students. In-depth study of network protocol and systems software design in area of wireless and mobile Internet. Topics include (1) networking fundamentals: design philosophy of TCP/IP, end-to-end arguments, and protocol design principles, (2) networking protocols: 802.11 MAC standard, packet scheduling, mobile IP, ad hoc routing, and wireless TCP, (3) mobile computing systems software: middleware, file system, services, and applications, and (4) topical studies: energy-efficient design, security, location management, and quality of service. Letter grading.

212A. Queueing Systems Theory. (4) Lecture, four hours; outside study, eight hours. Requisites: course 112, Electrical Engineering 131A. Resource sharing issues and theory of queueing (waiting-line) systems. Review of Markov chains and baby queueing theory. Method of stages. $M/E_r/1$, $E_r/M/1$. Bulk arrival and bulk service systems. Series-parallel stages. Fundamentals of open and closed queueing networks. Intermediate queueing theory: $M/G/1$; $G/M/m$. Collective marks. Advanced queueing theory: $G/G/1$; Lindley integral equation; spectral solution. Inequalities, bounds, approximations. Letter grading.

212B. Queueing Applications: Scheduling Algorithms and Queueing Networks. (4) Lecture, four hours; outside study, eight hours. Requisite: course 212A. Priority queueing. Applications to time-sharing scheduling algorithms: FB, Round Robin, Conservation Law, Bounds. Queueing networks: definitions; job flow balance; product form solutions—local balance, M_q/M ; computational algorithms for performance measures; asymptotic behavior and bounds; approximation techniques—diffusion—iterative techniques; applications. Letter grading.

M213A. Embedded Systems. (4) (Same as Electrical Engineering M202A.) Lecture, four hours; outside study, eight hours. Requisite: course 111. Designed for graduate computer science and electrical engineering students. Methodologies and technologies for design of embedded systems. Topics include hardware and software platforms for embedded systems, techniques for modeling and specification of system behavior, software organization, real-time operating system scheduling, real-time communication and packet scheduling, low-power battery and energy-aware system design, timing synchronization, fault tolerance and debugging, and techniques for hardware and software architecture optimization. Theoretical foundations as well as practical design methods. Letter grading.

M213B. Distributed Embedded Systems. (4) (Same as Electrical Engineering M202B.) Lecture, four hours; outside study, eight hours. Requisites: courses 111, and 118 or Electrical Engineering 132B. Designed for graduate computer science and electrical engineering students. Interdisciplinary course with focus on study of distributed embedded systems concepts needed to realize systems such as wireless sensor and actuator networks for monitoring and control of physical world. Topics include network self-configuration with localization and timing synchronization; energy-aware system design and operation; protocols for MAC, routing, transport, disruption tolerance; programming issues and models with language, OS, database, and middleware; in-network collaborative processing; fundamental characteristics such as coverage, connectivity, capacity, latency; techniques for exploitation and management of actuation and mobility; data and system integrity issues with calibration, faults, debugging, and security; and usage issues such as human interfaces and safety. Letter grading.

214. Data Transmission in Computer Communications. (4) Lecture, four hours; outside study, eight hours. Requisite: course 112. Limited to graduate computer science students. Discrete data streams, formats, rates, transductions; digital data transmissions via analog signaling in computer communication; media characteristics, systems methodologies, performance analysis; modem designs; physical interfaces in computer communication links; national/international standards; tests and measurements. Letter grading.

215. Computer Communications and Networks. (4) Lecture, four hours; outside study, eight hours. Requisite: course 112. Resource sharing; computer traffic characterizations; multiplexing; network structure; packet switching and other switching techniques; ARPANET and other computer network examples; network delay and analysis; network design and optimization; network protocols; routing and flow control; satellite and ground radio packet switching; local networks; commercial network services and architectures. Optional topics include extended error control techniques; modems; SDLC, HDLC, X.25, etc.; proto-

col verification; network simulation and measurement; integrated networks; communication processors. Letter grading.

216. Distributed Multiaccess Control in Networks. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 212A, 215. Topics from field of distributed control and access in computer networks, including terrestrial distributed computer networks; satellite packet switching; ground radio packet switching; local network architecture and control. Letter grading.

217A. Internet Architecture and Protocols. (4) Lecture, four hours; outside study, eight hours. Requisite: course 118. Focus on mastering existing core set of Internet protocols, including IP, core transport protocols, routing protocols, DNS, NTP, and security protocols such as DNSSEC, to understand principles behind design of these protocols, appreciate their design tradeoffs, and learn lessons from their operations. Letter grading.

217B. Advanced Topics in Internet Research. (4) Lecture, four hours; outside study, eight hours. Requisite: course 217A. Designed for graduate students. Overview of Internet development history and fundamental principles underlying TCP/IP protocol design. Discussion of current Internet research topics, including latest research results in routing protocols, transport protocols, network measurements, network security protocols, and clean-slate approach to network architecture design. Fundamental issues in network protocol design and implementations. Letter grading.

218. Advanced Computer Networks. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 112, 118. Review of seven-layer ISO-OSI model. High-speed networks: LANs, MANs, ATM. Flow and congestion control; bandwidth allocation. Internetworking. Letter grading.

219. Current Topics in Computer System Modeling Analysis. (2 to 12) Lecture, four hours; outside study, eight hours. Review of current literature in area of computer system modeling analysis in which instructor has developed special proficiency as consequence of research interests. Students report on selected topics. May be repeated for credit with consent of instructor. Letter grading.

CM221. Introduction to Bioinformatics. (4) (Same as Bioinformatics M260A, Chemistry CM260A, and Human Genetics M260A.) Lecture, three hours; discussion, one hour. Enforced requisites: course 180 or Program in Computing 60 with grade of C– or better, and Biostatistics 100A or 110A or Mathematics 170A or Statistics 100A or 110A. Introduction to bioinformatics and methodologies, with emphasis on concepts and inventing new bioinformatic methods. Focus on sequence analysis and alignment algorithms. Concurrently scheduled with course CM121. S/U or letter grading.

CM222. Algorithms in Bioinformatics and Systems Biology. (4) (Same as Chemistry CM260B.) Lecture, four hours; laboratory, four hours. Enforced requisite: course CM221 or Chemistry CM260A with grade of C– or better. Recommended: Computer Science 32 or Program in Computing 60, Statistics 100A, 110A. Development and application of computational approaches to biological questions. Understanding of mechanisms for determining statistical significance of computationally derived results. Development of foundation for innovative work in bioinformatics and systems biology. Concurrently scheduled with course CM122. Letter grading.

CM224. Computational Genetics. (4) (Same as Human Genetics CM224.) Lecture, three hours; discussion, one hour; outside study, eight hours. Preparation: one statistics course and familiarity with any programming language. Designed for undergraduate and graduate engineering students, as well as students from biological sciences and medical school. Introduction to current quantitative understanding of human genetics and computational interdisciplinary research in genetics. Topics include introduction to genetics, human population history, linkage analysis, association analysis, association study design, isolated and admixed populations, population substructure, human structural

variation, model organisms, and genotyping technologies. Computational techniques include those from statistics and computer science. Concurrently scheduled with course CM124. Letter grading.

M229S. Seminar: Current Topics in Bioinformatics. (4) (Same as Human Genetics M229S.) Seminar, four hours; outside study, eight hours. Designed for graduate engineering students, as well as students from biological sciences and medical school. Introduction to current topics in bioinformatics, genomics, and computational genetics and preparation for computational interdisciplinary research in genetics and genomics. Topics include genome analysis, regulatory genomics, association analysis, association study design, isolated and admixed populations, population substructure, human structural variation, model organisms, and genomic technologies. Computational techniques include those from statistics and computer science. May be repeated for credit with topic change. Letter grading.

230A. Models of Information and Computation. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 131, 181. Paradigms, models, frameworks, and problem solving; UML and meta-modeling; basic information and computation models; axiomatic systems; domain theory; least fixed point theory; well-founded induction. Logical models: sentences, axioms and rules, normal forms, derivation and proof, models and semantics, propositional logic, first-order logic, logic programming. Functional models: expressions, equations, evaluation; combinators; lambda calculus; functional programming. Program models: program derivation and verification using Hoare logic, object models, standard templates, design patterns, frameworks. Letter grading.

231. Types and Programming Languages. (4) Lecture, four hours; outside study, eight hours. Requisite: course 131. Introduction to static type systems and their usage in programming language design and software reliability. Operational semantics, simply-typed lambda calculus, type soundness proofs, types for mutable references, types for exceptions. Parametric polymorphism, let-bound polymorphism, polymorphic type inference. Types for objects, subtyping, combining parametric polymorphism and subtyping. Types for modules, parameterized modules. Formal specification and implementation of variety of type systems, as well as readings from recent research literature on modern applications of type systems. Letter grading.

232. Static Program Analysis. (4) Lecture, four hours; outside study, eight hours. Requisite: course 132. Introduction to static analysis of object-oriented programs and its usage for optimization and bug finding. Class hierarchy analysis, rapid type analysis, equality-based analysis, subset-based analysis, flow-insensitive and flow-sensitive analysis, context-insensitive and context-sensitive analysis. Soundness proofs for static analyses. Efficient data structures for static analysis information such as directed graphs and binary decision diagrams. Flow-directed method inlining, type-safe method inlining, synchronization optimization, deadlock detection, security vulnerability detection. Formal specification and implementation of variety of static analyses, as well as readings from recent research literature on modern applications of static analysis. Letter grading.

233A. Parallel Programming. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 111, 131. Mutual exclusion and resource allocation in distributed systems; primitives for parallel computation: specification of parallelism, interprocess communication and synchronization, atomic actions, binary and multiway rendezvous; synchronous and asynchronous languages: CSP, Ada, Linda, Maisie, UC, and others; introduction to parallel program verification. Letter grading.

233B. Verification of Concurrent Programs. (4) Lecture, four hours; outside study, eight hours. Requisite: course 233A. Formal techniques for verification of concurrent programs. Topics include safety, liveness, program and state assertion-based techniques,

weakest precondition semantics, Hoare logic, temporal logic, UNITY, and axiomatic semantics for selected parallel languages. Letter grading.

234. Computer-Aided Verification. (4) Lecture, four hours; outside study, eight hours. Requisite: course 181. Introduction to theory and practice of formal methods for design and analysis of concurrent and embedded systems, with focus on algorithmic techniques for checking logical properties of hardware and software systems. Topics include semantics of reactive systems, invariant verification, temporal logic model checking, theory of omega automata, state-space reduction techniques, compositional and hierarchical reasoning. Letter grading.

235. Advanced Operating Systems. (4) Lecture, four hours. Preparation: C or C++ programming experience. Requisite: course 111. In-depth investigation of operating systems issues through guided construction of research operating system for PC machines and consideration of recent literature. Memory management and protection, interrupts and traps, processes, interprocess communication, preemptive multitasking, file systems. Virtualization, networking, profiling, research operating systems. Series of laboratory projects, including extra challenge work. Letter grading.

236. Computer Security. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 111, 118. Basic and research material on computer security. Topics include basic principles and goals of computer security, common security tools, use of cryptographic protocols for security, security tools (firewalls, virtual private networks, honeypots), virus and worm protection, security assurance and testing, design of secure programs, privacy, applying security principles to realistic problems, and new and emerging threats and security tools. Letter grading.

239. Current Topics in Computer Science: Programming Languages and Systems. (2 to 12) Lecture, four hours; outside study, eight hours. Review of current literature in area of computer science programming languages and systems in which instructor has developed special proficiency as consequence of research interests. May be repeated for credit with topic change. Letter grading.

240A. Databases and Knowledge Bases. (4) Lecture, four hours; outside study, eight hours. Requisite: course 143. Theoretical and technological foundation of Intelligent Database Systems, that merge database technology, knowledge-based systems, and advanced programming environments. Rule-based knowledge representation, spatio-temporal reasoning, and logic-based declarative querying/programming are salient features of this technology. Other topics include object-relational systems and data mining techniques. Letter grading.

240B. Advanced Data and Knowledge Bases. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 143, 240A. Logical models for data and knowledge representations. Rule-based languages and nonmonotonic reasoning. Temporal queries, spatial queries, and uncertainty in deductive databases and object relational databases (ORDBs). Abstract data types and user-defined column functions in ORDBs. Data mining algorithms. Semistructured information. Letter grading.

241A. Object-Oriented and Semantic Database Systems. (4) Lecture, three and one-half hours; discussion, 30 minutes; laboratory, one hour; outside study, seven hours. Requisite: course 143. Object database principles and requirements. Data models, accessing, and query languages. Object data management standards. Extended relational-object systems. Database systems architecture and functional components. Systems comparison. Commercial products. Database design, organization, indexing, and performance. Future directions. Other topics at discretion of instructor. Letter grading.

241B. Pictorial and Multimedia Database Management. (4) Lecture, three and one-half hours; discussion, 30 minutes; laboratory, one hour; outside study, seven hours. Requisite: course 143. Multimedia data: alphanumeric, long text, images/pictures, video, and voice. Multimedia information systems requirements.

Data models. Searching and accessing databases and across Internet by alphanumeric, image, video, and audio content. Querying, visual languages, and communication. Database design and organization, logical and physical. Indexing methods. Internet multimedia streaming. Other topics at discretion of instructor. Letter grading.

244A. Distributed Database Systems. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 215 and/or 241A. File allocation, intelligent directory design, transaction management, deadlock, strong and weak concurrency control, commit protocols, semantic query answering, multidatabase systems, fault recovery techniques, network partitioning, examples, trade-offs, and design experiences. Letter grading.

245A. Intelligent Information Systems. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 241A, 255A. Knowledge discovery in database, knowledge-base maintenance, knowledge-base and database integration architectures, and scale-up issues and applications to cooperative database systems, intelligent decision support systems, and intelligent planning and scheduling systems; computer architecture for processing large-scale knowledge-base/database systems. Letter grading.

246. Web Information Management. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 112, 143, 180, 181. Designed for graduate students. Scale of Web data requires novel algorithms and principles for their management and retrieval. Study of Web characteristics and new management techniques needed to build computer systems suitable for Web environment. Topics include Web measuring techniques, large-scale data mining algorithms, efficient page refresh techniques, Web-search ranking algorithms, and query processing techniques on independent data sources. Letter grading.

249. Current Topics in Data Structures. (2 to 12) Lecture, four hours; outside study, eight hours. Review of current literature in area of data structures in which instructor has developed special proficiency as consequence of research interests. Students report on selected topics. May be repeated for credit with consent of instructor. Letter grading.

251A. Advanced Computer Architecture. (4) Lecture, four hours; outside study, eight hours. Requisite: course M151B. Recommended: course 111. Design and implementation of high-performance systems, advanced memory hierarchy techniques, static and dynamic pipelining, superscalar and VLIW processors, branch prediction, speculative execution, software support for instruction-level parallelism, simulation-based performance analysis and evaluation, state-of-art design examples, introduction to parallel architectures. Letter grading.

251B. Parallel Computer Architectures. (4) Lecture, four hours; outside study, eight hours. Requisite: course M151B. Recommended: course 251A. SIMD and MIMD systems, symmetric multiprocessors, distributed-shared-memory systems, messages-passing systems, multicore chips, clusters, interconnection networks, host-network interfaces, switching element design, communication primitives, cache coherency, memory consistency models, synchronization primitives, state-of-art design examples. Letter grading.

252A. Arithmetic Algorithms and Processors. (4) Lecture, four hours; outside study, eight hours. Requisite: course 251A. Number systems: conventional, redundant, signed-digit, and residue. Types of algorithms and implementations. Complexity measures. Fast algorithms and implementations for two-operand addition, multioperand addition, multiplication, division, and square root. Online arithmetic. Evaluation of transcendental functions. Floating-point arithmetic and numerical error control. Arithmetic error codes. Residue arithmetic. Examples of contemporary arithmetic ICs and processors. Letter grading.

253A. Design of Fault-Tolerant Systems. (4) Lecture, four hours; outside study, eight hours. Requisite or corequisite: course 251A. Fundamental concepts of dependable computing. Design methodology for fault-tolerant systems. Analytic models and mea-

asures, modeling tools. Design for critical applications: long-life, real-time, and high-availability systems. Tolerance of design faults: design diversity and fault-tolerant software. Letter grading.

253C. Testing and Testable Design of VLSI Systems. (4) Lecture, four hours; outside study, eight hours. Requisite: course M51A. Detailed study of various problems in testing and testable designs of VLSI systems, including fault modeling, fault simulation, testing for single stuck faults and multiple stuck faults, functional testing, design for testability, compression techniques, and built-in self-test. Letter grading.

254A. Computer Memories and Memory Systems. (4) Lecture, four hours; outside study, eight hours. Requisite: course 251A. Generic types of memory systems; control, access modes, hierarchies, and allocation algorithms. Characteristics, system organization, and device considerations of ferrite memories, thin film memories, and semiconductor memories. Letter grading.

255A. Distributed Processing Systems. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 215 and/or 251A. Task partitioning and allocation, interprocess communications, task response time model, process scheduling, message passing protocols, replicated file systems, interface, cache memory, actor model, fine grain multicomputers, distributed operating system kernel, error recovery strategy, performance monitoring and measurement, scalability and maintainability, prototypes and commercial distributed systems. Letter grading.

256A. Advanced Scalable Architectures. (4) Lecture, four hours; outside study, eight hours. Requisite: course M151B. Recommended: course 251A. State-of-art scalable multiprocessors. Interdependency among implementation technology, chip microarchitecture, and system architecture. High-performance building blocks, such as chip multiprocessors (CMPs). On-chip and off-chip communication. Mechanisms for exploiting parallelism at multiple levels. Current research areas. Examples of chips and systems. Letter grading.

M258A. Design of VLSI Circuits and Systems. (4) (Same as Electrical Engineering M216A.) Lecture, four hours; discussion, one hour; laboratory, four hours; outside study, three hours. Requisites: course M51A or Electrical Engineering M16, and Electrical Engineering 115A. Recommended: Electrical Engineering 115C. LSI/VLSI design and application in computer systems. Fundamental design techniques that can be used to implement complex integrated systems on chips. Letter grading.

M258C. LSI in Computer System Design. (4) (Same as Electrical Engineering M216C.) Lecture, four hours; laboratory, four hours; outside study, four hours. Requisite: course M258A. LSI/VLSI design and application in computer systems. In-depth studies of VLSI architectures and VLSI design tools. Letter grading.

258E. Foundations of VLSI CAD Algorithms. (4) Lecture, four hours; outside study, eight hours. Preparation: one course in analysis and design of algorithms. Basic theory of combinatorial optimization for VLSI physical layout, including mathematical programming, network flows, matching, greedy and heuristic algorithms, and stochastic methods. Emphasis on practical application to computer-aided physical design of VLSI circuits at high-level phases of layout: partitioning, placement, graph folding, floorplanning, and global routing. Letter grading.

258F. Physical Design Automation of VLSI Systems. (4) Lecture, four hours; outside study, eight hours. Detailed study of various physical design automation problems of VLSI circuits, including logic partitioning, floorplanning, placement, global routing, channel and switchbox routing, planar routing and via minimization, compaction and performance-driven layout. Discussion of applications of number of important optimization techniques, such as network flows, Steiner trees, simulated annealing, and generic algorithms. Letter grading.

258G. Logic Synthesis of Digital Systems. (4) Lecture, four hours; outside study, eight hours. Requisites: courses M51A, 180. Detailed study of various problems in logic-level synthesis of VLSI digital systems, including two-level Boolean network optimization; multilevel Boolean network optimization; technology mapping for standard cell designs and field-programmable gate-array (FPGA) designs; retiming for sequential circuits; and applications of binary decision diagrams (BDDs). Letter grading.

258H. Analysis and Design of High-Speed VLSI Interconnects. (4) Lecture, four hours; outside study, eight hours. Requisites: courses M258A, 258F. Detailed study of various problems in analysis and design of high-speed VLSI interconnects at both integrated circuit (IC) and packing levels, including interconnect capacitance and resistance, lossless and lossy transmission lines, cross-talk and power distribution noise, delay models and power dissipation models, interconnect topology and geometry optimization, and clocking for high-speed systems. Letter grading.

259. Current Topics in Computer Science: System Design/Architecture. (2 to 12) Lecture, four hours; outside study, eight hours. Review of current literature in area of computer science system design in which instructor has developed special proficiency as consequence of research interests. Students report on selected topics. May be repeated for credit with topic change. Letter grading.

261A. Problem Solving and Search. (4) Lecture, four hours; outside study, eight hours. Requisite: course 180. In-depth treatment of systematic problem-solving search algorithms in artificial intelligence, including problem spaces, brute-force search, heuristic search, linear-space algorithms, real-time search, heuristic evaluation functions, two-player games, and constraint-satisfaction problems. Letter grading.

262A. Reasoning with Partial Beliefs. (4) Lecture, four hours; outside study, eight hours. Requisite: course 112 or Electrical Engineering 131A. Review of several formalisms for representing and managing uncertainty in reasoning systems; presentation of comprehensive description of Bayesian inference using belief networks representation. Letter grading.

262B. Knowledge-Based Systems. (4) Lecture, four hours; outside study, eight hours. Requisite: course 262A. Machine representation of judgmental knowledge and uncertain relationships. Inference on inexact knowledge bases. Rule-based systems—principles, advantages, and limitations. Signal understanding. Automated planning systems. Knowledge acquisition and explanation producing techniques. Letter grading.

M262C. Causal Inference. (4) (Same as Statistics M241.) Lecture, four hours; outside study, eight hours. Requisite: course 112 or equivalent probability theory course. Techniques of using computers to interpret, summarize, and form theories of empirical observations. Mathematical analysis of trade-offs between computational complexity, storage requirements, and precision of computerized models. Letter grading.

262Z. Current Topics in Cognitive Systems. (4) Lecture, four hours; outside study, eight hours. Requisite: course 262A. Additional requisites for each offering announced in advance by department. Theory and implementation of systems that emulate or support human reasoning. Current literature and individual studies in artificial intelligence, knowledge-based systems, decision support systems, computational psychology, and heuristic programming theory. May be repeated for credit with topic change. Letter grading.

263A. Language and Thought. (4) Lecture, four hours; outside study, eight hours. Requisite: course 130 or 131 or 161. Introduction to natural language processing (NLP), with emphasis on semantics. Presentation of process models for variety of tasks, including question answering, paraphrasing, machine translation, word-sense disambiguation, narrative and editorial comprehension. Examination of both symbolic and statistical approaches to language processing and acquisition. Letter grading.

263B. Connectionist Natural Language Processing. (4) Lecture, four hours; outside study, eight hours. Requisite: course 161 or 263A. Examination of connectionist/ANN architectures designed for natural language processing. Issues include localist versus distributed representations, variable binding, instantiation and inference via spreading activation, acquisition of language and world knowledge (for instance, via back propagation in PDP networks and competitive learning in self-organizing feature maps), and grounding of symbols in sensory/motor experience. Letter grading.

263C. Animats-Based Modeling. (4) Lecture, four hours; outside study, eight hours. Requisite: course 130 or 131 or 161. Animats are mobile/sensing animal-like software agents embedded in simulated dynamic environments. Emphasis on modeling: goal-oriented behavior via neurocontrollers, adaptation via reinforcement learning, evolutionary programming. Animat-based tasks include foraging, mate finding, predation, navigation, predator avoidance, cooperative nest construction, communication, and parenting. Letter grading.

264A. Automated Reasoning: Theory and Applications. (4) Lecture, four hours; laboratory, four hours; outside study, four hours. Requisite: course 161. Introduction to theory and practice of automated reasoning using propositional and first-order logic. Topics include syntax and semantics of formal logic; algorithms for logical reasoning, including satisfiability and entailment; syntactic and semantic restrictions on knowledge bases; effect of these restrictions on expressiveness, compactness, and computational tractability; applications of automated reasoning to diagnosis, planning, design, formal verification, and reliability analysis. Letter grading.

265A. Machine Learning. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 263A, 264A. Introduction to machine learning. Learning by analogy, inductive learning, modeling creativity, learning by experience, role of episodic memory organization in learning. Examination of BACON, AM, Eurisko, HACKER, teachable production systems. Failure-driven learning. Letter grading.

M266A. Statistical Modeling and Learning in Vision and Science. (4) (Same as Statistics M232A.) Lecture, three hours. Preparation: basic statistics, linear algebra (matrix analysis), computer vision. Computer vision and pattern recognition. Study of four types of statistical models for modeling visual patterns: descriptive, causal Markov, generative (hidden Markov), and discriminative. Comparison of principles and algorithms for these models; presentation of unifying picture. Introduction of minimax entropy and EM-type and stochastic algorithms for learning. S/U or letter grading.

M266B. Statistical Computing and Inference in Vision and Image Science. (4) (Same as Statistics M232B.) Lecture, three hours. Preparation: basic statistics, linear algebra (matrix analysis), computer vision. Introduction to broad range of algorithms for statistical inference and learning that could be used in vision, pattern recognition, speech, bioinformatics, data mining. Topics include Markov chain Monte Carlo computing, sequential Monte Carlo methods, belief propagation, partial differential equations. S/U or letter grading.

267A. Neural Models. (4) Lecture, four hours; outside study, eight hours. Designed for graduate students. Review of major neurophysiological milestones in understanding brain architecture and processes. Focus on brain theories that are important for modern computer science and, in particular, on models of sensory perception, sensory-motor coordination, and cerebellar and cerebral structure and function. Students required to prepare papers analyzing research in one area of interest. Letter grading.

267B. Artificial Neural Systems and Connectionist Computing. (4) Lecture, four hours; outside study, eight hours. Designed for graduate students. Analysis of major connectionist computing paradigms and underlying models of biological and physical processes. Examination of past and current implementations of

artificial neural networks along with their applications to associative knowledge processing, general multi-sensor pattern recognition including speed and vision, and adaptive robot control. Students required to prepare papers analyzing research in one area of interest. Letter grading.

268. Machine Perception. (4) Lecture, four hours; outside study, eight hours. Designed for graduate students. Computational aspects of processing visual and other sensory information. Unified treatment of early vision in man and machine. Integration of symbolic and iconic representations in process of image segmentation. Computing multimodal sensory information by "neural-net" architectures. Letter grading.

268S. Seminar: Computational Neuroscience. (2) Seminar, two hours; outside study, four hours. Designed for students undertaking thesis research. Discussion of advanced topics and current research in computational neuroscience. Neural networks and connectionism as paradigm for parallel and concurrent computation in application to problems of perception, vision, multimodal sensory integration, and robotics. May be repeated for credit. S/U grading.

269. Seminar: Current Topics in Artificial Intelligence. (2 to 4) Seminar, to be arranged. Review of current literature and research practicum in area of artificial intelligence in which instructor has developed special proficiency as consequence of research interests. Students report on selected topics. May be repeated for credit with topic change. Letter grading.

270A. Computer Methodology: Advanced Numerical Methods. (4) Lecture, four hours; outside study, eight hours. Requisite: Electrical Engineering 103 or Mathematics 151B or comparable experience with numerical computing. Designed for graduate computer science and engineering students. Principles of computer treatment of selected numerical problems in algebraic and differential systems, transforms and spectra, data acquisition and reduction; emphasis on concepts pertinent to modeling and simulation and applicability of contemporary developments in numerical software. Computer exercises. Letter grading.

271A. Modeling and Simulation of Lumped Parameter Systems. (4) Lecture, eight hours; outside study, four hours. Recommended preparation: course 270A. Characterization of electrical, electromechanical, and other engineering problems by systems of nonlinear ordinary differential equations. Survey of integration algorithms. Digital simulation languages for continuous systems. Real-time simulation using array processor and multiprocessor computer systems. Letter grading.

271B. Modeling and Simulation of Distributed Parameter Systems. (4) Lecture, eight hours; outside study, four hours. Recommended preparation: course 270A. Mathematical formulation of engineering field problems governed by partial differential equations. Finite difference and finite element approximations. Principal algorithms for solving elliptic, parabolic, and hyperbolic partial differential equations. Supercomputers, vector processors, multiprocessors, and array processors. Letter grading.

271C. Seminar: Advanced Simulation Methods. (2) Seminar, two hours; outside study, six hours. Requisite: course 271A. Discussion of advanced topics in simulation of systems characterized by ordinary and partial differential equations. Topics include (among others) simulation languages, dataflow machines, array processors, and advanced mathematical modeling techniques. Topics vary each term. May be repeated for credit. S/U grading.

272. Advanced Discrete Event Simulation and Modeling Techniques. (4) Lecture, four hours; outside study, eight hours. In-depth study in discrete event simulation and modeling techniques, including building valid and credible simulation models, output analysis of systems, comparisons of alternative system configurations. Variance reduction techniques, simulation models of computer systems and manufacturing systems. Letter grading.

273A. Digital Processing of Engineering and Statistical Data. (4) Lecture, four hours; outside study, eight hours. Computer methods for processing engineering and statistical data. Algorithms to evaluate recursive filter functions, Fourier series, power spectral, analysis correlation computations, and statistical testing. Letter grading.

C274C. Computer Animation. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 174A. Introduction to computer animation, including basic principles of character modeling, forward and inverse kinematics, forward and inverse dynamics, motion capture animation techniques, physics-based animation of particles and systems, and motor control. Concurrently scheduled with course C174C. Letter grading.

275. Artificial Life for Computer Graphics and Vision. (4) Lecture, four hours; outside study, eight hours. Enforced requisite: course 174A. Recommended: course 161. Investigation of important role that concepts from artificial life, emerging discipline that spans computational and biological sciences, can play in construction of advanced computer graphics and vision models for virtual reality, animation, interactive games, active vision, visual sensor networks, medical image analysis, etc. Focus on comprehensive models that can realistically emulate variety of living things (plants and animals) from lower animals to humans. Exposure to effective computational modeling of natural phenomena of life and their incorporation into sophisticated, self-animating graphical entities. Specific topics include modeling plants using L-systems, biomechanical simulation and control, behavioral animation, reinforcement and neural-network learning of locomotion, cognitive modeling, artificial animals and humans, human facial animation, and artificial evolution. Letter grading.

M276A. Pattern Recognition and Machine Learning. (4) (Same as Statistics M231.) Lecture, three hours. Designed for graduate students. Fundamental concepts, theories, and algorithms for pattern recognition and machine learning that are used in computer vision, image processing, speech recognition, data mining, statistics, and computational biology. Topics include Bayesian decision theory, parametric and nonparametric learning, clustering, complexity (VC-dimension, MDL, AIC), PCA/ICA/TCA, MDS, SVM, boosting. S/U or letter grading.

276B. Structured Computer Vision. (4) Lecture, four hours; outside study, eight hours. Designed for graduate students. Methods for computer processing of image data. Systems, concepts, and algorithms for image analysis, radiologic and robotic applications. Letter grading.

276C. Speech and Language Communication in Artificial Intelligence. (4) Lecture, four hours; outside study, eight hours. Requisite: course M276A or 276B. Topics in human-computer communication: interaction with pictorial information systems, sound and symbol generation by humans and machines, semantics of data, systems for speech recognition and understanding. Use of speech and text for computer input and output in applications. Letter grading.

279. Current Topics in Computer Science: Methodology. (2 to 12) Lecture, four hours; outside study, eight hours. Review of current literature in area of computer science methodology in which instructor has developed special proficiency as consequence of research interests. Students report on selected topics. May be repeated for credit with topic change. Letter grading.

280A-280ZZ. Algorithms. (4 each) Lecture, four hours; outside study, eight hours. Requisite: course 180. Additional requisites for each offering announced in advance by department. Selections from design, analysis, optimization, and implementation of algorithms; computational complexity and general theory of algorithms; algorithms for particular application areas. Subtitles of some current sections: Principles of Design and Analysis (280A); Distributed Algorithms (280D); Graphs and Networks (280G). May be repeated for credit with consent of instructor and topic change. Letter grading.

280AP. Approximation Algorithms. (4) Lecture, four hours; outside study, eight hours. Requisite: course 180. Background in discrete mathematics helpful. Theoretically sound techniques for dealing with NP-Hard problems. Inability to solve these problems efficiently means algorithmic techniques are based on approximation—finding solution that is near to best possible in efficient running time. Coverage of approximation techniques for number of different problems, with algorithm design techniques that include primal-dual method, linear program rounding, greedy algorithms, and local search. Letter grading.

281A. Computability and Complexity. (4) Lecture, four hours; outside study, eight hours. Requisite: course 181 or compatible background. Concepts fundamental to study of discrete information systems and theory of computing, with emphasis on regular sets of strings, Turing-recognizable (recursively enumerable) sets, closure properties, machine characterizations, nondeterminisms, decidability, unsolvable problems, “easy” and “hard” problems, PTIME/NPTIME. Letter grading.

281D. Discrete State Systems. (4) Lecture, four hours; outside study, eight hours. Recommended requisite: course 181. Finite-state machines, transducers, and their generalizations; regular expressions, transduction expressions, realizability; decomposition, synthesis, and design considerations; topics in state and system identification and fault diagnosis, linear machines, probabilistic machines, applications in coding, communication, computing, system modeling, and simulation. Letter grading.

M282A. Cryptography. (4) (Same as Mathematics M209A.) Lecture, four hours; outside study, eight hours. Introduction to theory of cryptography, stressing rigorous definitions and proofs of security. Topics include notions of hardness, one-way functions, hardcore bits, pseudorandom generators, pseudorandom functions and pseudorandom permutations, semantic security, public-key and private-key encryption, secret-sharing, message authentication, digital signatures, interactive proofs, zero-knowledge proofs, collision-resistant hash functions, commitment protocols, key-agreement, contract signing, and two-party secure computation with static security. Letter grading.

M282B. Cryptographic Protocols. (4) (Same as Mathematics M209B.) Lecture, four hours; outside study, eight hours. Requisite: course M282A. Consideration of advanced cryptographic protocol design and analysis. Topics include noninteractive zero-knowledge proofs; zero-knowledge arguments; concurrent and non-black-box zero-knowledge; IP=PSPACE proof, stronger notions of security for public-key encryption, including chosen-ciphertext security; secure multiparty computation; dealing with dynamic adversary; nonmalleability and composability of secure protocols; software protection; threshold cryptography; identity-based cryptography; private information retrieval; protection against man-in-middle attacks; voting protocols; identification protocols; digital cash schemes; lower bounds on use of cryptographic primitives, software obfuscation. May be repeated for credit with topic change. Letter grading.

M283A-M283B. Topics in Applied Number Theory. (4-4) (Same as Mathematics M208A-M208B.) Lecture, three hours. Basic number theory, including congruences and prime numbers. Cryptography: public-key and discrete log cryptosystems. Attacks on cryptosystems. Primality testing and factorization methods. Elliptic curve methods. Topics from coding theory: Hamming codes, cyclic codes, Gilbert/Varshamov bounds, Shannon theorem. S/U or letter grading.

284A-284ZZ. Topics in Automata and Languages. (4 each) Lecture, four hours; outside study, eight hours. Requisite: course 181. Additional requisites for each offering announced in advance by department. Selections from families of formal languages, grammars, machines, operators; pushdown automata, context-free languages and their generalizations, parsing; multidimensional grammars, developmental systems; machine-based complexity. Subtitles of some current and planned sections: Context-Free

Languages (284A), Parsing Algorithms (284P). May be repeated for credit with consent of instructor and topic change. Letter grading.

CM286B. Computational Systems Biology: Modeling and Simulation of Biological Systems. (5) (Same as Biomedical Engineering CM286B.) Lecture, four hours; laboratory, three hours; outside study, eight hours. Corequisite: Electrical Engineering 102. Dynamic biosystems modeling and computer simulation methods for studying biological/biomedical processes and systems at multiple levels of organization. Control system, multicompartmental, predator-prey, pharmacokinetic (PK), pharmacodynamic (PD), and other structural modeling methods applied to life sciences problems at molecular, cellular (biochemical pathways/networks), organ, and organismic levels. Both theory- and data-driven modeling, with focus on translating biomodeling goals and data into mathematics models and implementing them for simulation and analysis. Basics of numerical simulation algorithms, with modeling software exercises in class and PC laboratory assignments. Concurrently scheduled with course CM186B. Letter grading.

CM286C. Biomodeling Research and Research Communication Workshop. (2 to 4) (Formerly numbered CM286L.) (Same as Biomedical Engineering CM286C.) Lecture, one hour; discussion, two hours; laboratory, one hour; outside study, eight hours. Requisite: course CM286B. Closely directed, interactive, and real research experience in active quantitative systems biology research laboratory. Direction on how to focus on topics of current interest in scientific community, appropriate to student interests and capabilities. Critiques of oral presentations and written progress reports explain how to proceed with search for research results. Major emphasis on effective research reporting, both oral and written. Concurrently scheduled with course CM186C. Letter grading.

287A. Theory of Program Structure. (4) Lecture, four hours; outside study, eight hours. Requisite: course 181. Models of computer programs and their syntax and semantics; emphasis on programs and recursion schemes; equivalence, optimization, correctness, and translatability of programs; expressive power of program constructs and data structures; selected current topics. Letter grading.

288S. Seminar: Theoretical Computer Science. (2) Seminar, two hours; outside study, six hours. Requisites: courses 280A, 281A. Intended for students undertaking thesis research. Discussion of advanced topics and current research in such areas as algorithms and complexity models for parallel and concurrent computation, and formal language and automata theory. May be repeated for credit. S/U grading.

289A-289ZZ. Current Topics in Computer Theory. (2 to 12 each) Lecture, four hours; outside study, eight hours. Review of current literature in area of computer theory in which instructor has developed special proficiency as consequence of research interests. Students report on selected topics. Letter grading.

289CO. Complexity Theory. (4). Lecture, four hours; outside study, eight hours. Diagonalization, polynomial-time hierarchy, PCP theorem, randomness and derandomization, circuit complexity, attempts and limitations to proving P does not equal NP, average-case complexity, one-way functions, hardness amplification. Problem sets and presentation of previous and original research related to course topics. Letter grading.

289OA. Online Algorithms. (4) Lecture, four hours; outside study, eight hours. Requisite: course 180. Introduction to decision making under uncertainty and competitive analysis. Review of current research in online algorithms for problems arising in many areas, such as data and memory management, searching and navigating in unknown terrains, and server systems. Letter grading.

289RA. Randomized Algorithms. (4) Lecture, four hours; outside study, eight hours. Basic concepts and design techniques for randomized algorithms, such as probability theory, Markov chains, random walks, and probabilistic method. Applications to randomized al-

gorithms in data structures, graph theory, computational geometry, number theory, and parallel and distributed systems. Letter grading.

M296A. Advanced Modeling Methodology for Dynamic Biomedical Systems. (4) (Same as Biomedical Engineering M296A and Medicine M270C.) Lecture, four hours; outside study, eight hours. Requisite: Electrical Engineering 141 or 142 or Mathematics 115A or Mechanical and Aerospace Engineering 171A. Development of dynamic systems modeling methodology for physiological, biomedical, pharmacological, chemical, and related systems. Control system, multicompartmental, noncompartmental, and input/output models, linear and nonlinear. Emphasis on model applications, limitations, and relevance in biomedical sciences and other limited data environments. Problem solving in PC laboratory. Letter grading.

M296B. Optimal Parameter Estimation and Experiment Design for Biomedical Systems. (4) (Same as Biomathematics M270, Biomedical Engineering M296B, and Medicine M270D.) Lecture, four hours; outside study, eight hours. Requisite: course M296A or Biomathematics 220. Estimation methodology and model parameter estimation algorithms for fitting dynamic system models to biomedical data. Model discrimination methods. Theory and algorithms for designing optimal experiments for developing and quantifying models, with special focus on optimal sampling schedule design for kinetic models. Exploration of PC software for model building and optimal experiment design via applications in physiology and pharmacology. Letter grading.

M296C. Advanced Topics and Research in Biomedical Systems Modeling and Computing. (4) (Same as Biomedical Engineering M296C and Medicine M270E.) Lecture, four hours; outside study, eight hours. Requisite: course M296A. Recommended: course M296B. Research techniques and experience on special topics involving models, modeling methods, and model/computing in biological and medical sciences. Review and critique of literature. Research problem searching and formulation. Approaches to solutions. Individual M.S.- and Ph.D.-level project training. Letter grading.

M296D. Introduction to Computational Cardiology. (4) (Same as Biomedical Engineering M296D.) Lecture, four hours; outside study, eight hours. Requisite: course CM186B. Introduction to mathematical modeling and computer simulation of cardiac electrophysiological process. Ionic models of action potential (AP). Theory of AP propagation in one-dimensional and two-dimensional cardiac tissue. Simulation on sequential and parallel supercomputers, choice of numerical algorithms, to optimize accuracy and to provide computational stability. Letter grading.

298. Research Seminar: Computer Science. (2 to 4) Seminar, two to four hours; outside study, four to eight hours. Designed for graduate computer science students. Discussion of advanced topics and current research in algorithmic processes that describe and transform information: theory, analysis, design, efficiency, implementation, and application. May be repeated for credit. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Teaching Assistant Training Seminar. (2) Seminar, two hours; outside study, six hours. Limited to graduate Computer Science Department students. Seminar on communication of computer science materials in classroom: preparation, organization of material, presentation, use of visual aids, grading, advising, and rapport with students. S/U grading.

495B. Teaching with Technology. (2) Seminar, two hours; outside study, four hours. Limited to graduate Computer Science Department teaching assistants. Seminar for teaching assistants covering how technology can be used to aid instruction in and out of classroom. S/U grading.

497D-497E. Field Projects in Computer Science. (4-4) Fieldwork, to be arranged. Students are divided into teams led by instructor; each team is assigned one external company or organization that they investigate as candidate for possible computerization, submitting team report of their findings and recommendations. In Progress (497D) and S/U or letter (497E) grading.

596. Directed Individual or Tutorial Studies. (2 to 8) Tutorial, to be arranged. Limited to graduate computer science students. Petition forms to request enrollment may be obtained from assistant dean, Graduate Studies. Supervised investigation of advanced technical problems. S/U grading.

597A. Preparation for M.S. Comprehensive Examination. (2 to 12) Tutorial, to be arranged. Limited to graduate computer science students. Reading and preparation for M.S. comprehensive examination. S/U grading.

597B. Preparation for Ph.D. Preliminary Examinations. (2 to 16) Tutorial, to be arranged. Limited to graduate computer science students. Preparation for Ph.D. preliminary examinations. S/U grading.

597C. Preparation for Ph.D. Oral Qualifying Examination. (2 to 16) Tutorial, to be arranged. Limited to graduate computer science students. Preparation for oral qualifying examination, including preliminary research on dissertation. S/U grading.

598. Research for and Preparation of M.S. Thesis. (2 to 12) Tutorial, to be arranged. Limited to graduate computer science students. Supervised independent research for M.S. candidates, including thesis prospectus. S/U grading.

599. Research for and Preparation of Ph.D. Dissertation. (2 to 16) Tutorial, to be arranged. Limited to graduate computer science students. Petition forms to request enrollment may be obtained from assistant dean, Graduate Studies. S/U grading.

COMPUTING, PROGRAM IN

See Mathematics

CONSERVATION OF ARCHAEOLOGICAL AND ETHNOGRAPHIC MATERIALS

*Interdepartmental Program
College of Letters and Science*

UCLA
A410 Fowler Building
Box 951510
Los Angeles, CA 90095-1510
(310) 825-9407
fax: (310) 206-4723
e-mail: acordts@ucla.edu
<http://www.ioa.ucla.edu/conservation-program/>

David A. Scott, Ph.D., *Chair*

Faculty Administrative Committee

Robert L. Brown, Ph.D. (*Art History*)
Jesse L. Byock, Ph.D. (*Scandinavian*)
Susan B. Downey, Ph.D. (*Art History*)
Robin L. Garrell, Ph.D. (*Chemistry and Biochemistry*)
Ioanna Kakoulli, D.Phil. (*Materials Science and Engineering*)
Abby Kavner, Ph.D. (*Earth and Space Sciences*)
Gavin Lawrence, D.Phil. (*Philosophy*)
John K. Papadopoulos, Ph.D. (*Classics*)

Suzanne E. Paulson, Ph.D. (*Atmospheric and Oceanic Sciences*)

Ellen J. Pearlstein, M.A. (*Information Studies*)

David A. Scott, Ph.D. (*Art History*)

Lothar von Falkenhausen, Ph.D. (*Art History*)

Willemina Z. Wendrich, Ph.D. (*Near Eastern Languages and Cultures*)

Scope and Objectives

Students study for an M.A. degree in Conservation of Archaeological and Ethnographic Materials, with emphasis on the multiple values and meanings that archaeological and ethnographic artifacts may hold for society, and how they impact decisions on the conservation and use of those materials. In the conservation philosophy that underpins the program, there is a strong interdisciplinary component, essential to effective working practices in the future. The three-year graduate program is a collaborative venture with the Getty Trust and is based in new facilities at the Getty Villa site in Malibu.

The aim of the program is to provide students with a solid educational base and practical training in both archaeological and ethnographic materials, as well as an appreciation of the often complex issues related to significance, access, and use of these materials that can be very different from the criteria for conservation of fine art or historical materials. In the case of ethnographic materials especially, the program facilitates an understanding of the multiple values that artifacts hold for indigenous populations and fosters a sense of partnership with indigenous communities in relevant aspects of the conservation process.

The partnership between UCLA and the Getty in creating the program ensures that both a major research university and an institution with a major mandate for conservation of the artistic heritage of the world are working to create a rich and vibrant conservation training opportunity. The program helps students develop working relationships with a wide array of colleagues in the Getty Conservation Institute, the J. Paul Getty Museum, and the UCLA Departments of Anthropology, Art History, Chemistry and Biochemistry, and Earth and Space Sciences, and the Interdepartmental Program in Archaeology.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degree

The Conservation of Archaeological and Ethnographic Materials Program offers a Master of Arts (M.A.) degree in Conservation of Archaeological and Ethnographic Materials.

Conservation of Archaeological and Ethnographic Materials Graduate Courses

M210. Introduction to Archaeological Materials Science: Scientific Methodologies, Techniques, and Interpretation. (4) (Formerly numbered 210.) (Same as Materials Science CM212.) Lecture, three hours; laboratory, two hours. Preparation: general chemistry, or inorganic and organic chemistry. Several basic scientific techniques employed for examination of archaeological and cultural artifacts to answer questions of anthropological significance and their state of preservation. Theoretical and hands-on instruction to provide fundamentals of portable/field and analytical techniques such as UV/VNIR spectrophotometry, X-ray fluorescence (XRF), X-ray diffraction (XRD), scanning electron microscopy and energy dispersive spectroscopy (SEM-EDS), and others. Examination and analysis protocols, sample preparation techniques, and methods of scientific analysis and interpretation for study of organic and inorganic materials of archaeological and cultural significance. Letter grading.

M215. Digital Imaging and Documentation for Art and Archaeology. (4) (Formerly numbered 215.) (Same as Art History M204A.) Seminar, two hours; laboratory, three hours. How to photograph and record objects of cultural and artistic significance. Methods used to enhance important details and invisible features. How to graphically illustrate significant and diagnostic characteristics (such as original preparatory techniques, surface texture, and deterioration phenomena) and prepare technical data forms of objects. Opportunity to develop basic skills in digital photodocumentation and diagnostic imaging, including ultraviolet and infrared recording techniques and multi-spectral imaging. Letter grading.

M216. Science of Conservation Materials and Methods I. (4) (Formerly numbered 216.) (Same as Materials Science M216.) Seminar, one hour; laboratory, three hours. Recommended requisite: Materials Science 104. Introduction to physical, chemical, and mechanical properties of conservation materials (employed for preservation of archaeological and cultural materials) and their aging characteristics. Science and application methods of traditional organic and inorganic systems and introduction of novel technology based on biomineralization processes and nanostructured materials. Letter grading.

222. Conservation and Ethnography. (4) Laboratory, four hours. Designed for graduate conservation students. Introduction to work as conservators with indigenous repositories housing cultural collections. Students learn different models for tribal museums and cultural centers, and importance of material selection and properties in baskets they are treating. Letter grading.

224. Issues in Preservation and Management of Archaeological and Cultural Sites. (4) Seminar, three hours. Designed to offer practical model of preservation and management planning for heritage sites that reflects real case-study scenarios. Adaptive management planning following iterative processes for sustainable heritage preservation addressing threats and challenges such as climate change and global warming, conflicts, and neglect. Consideration of significance and value of heritage sites and role of stakeholders. Investigation of methods of evaluation of physical condition and development of risk assessments to address physical risks in milieu of site preservation management, including visitors' organization, urban development, socioeconomic growth, and tourist development. Letter grading.

230. Deterioration and Conservation of Inorganic Materials I: Ceramics and Glass. (4) Seminar, one hour; laboratory, two hours. Recommended requisite: Archaeology C210. Introduction to deterioration and conservation of ceramics and glass. Discussion of environmental parameters affecting survival of ceramics,

types of decay processes that glass is subject to, and nature of frits and faience deterioration. Evaluation of use of conservation materials in joining, gap-filling, and restoration of ceramics and experience in their use provided. Letter grading.

232. Deterioration and Conservation of Organic Materials I. (4) Seminar, two hours; laboratory, three hours. Requisite: Archaeology C210. Designed for graduate conservation students. How to recognize characteristic deterioration problems found in organic materials from archaeological and ethnographic contexts and introduction to typical treatments used historically and currently for these materials. Materials focus on bone, ivory, shell, horn, tortoise shell, leather, and plastics and rubber. Letter grading.

234. Deterioration and Conservation of Inorganic Materials II: Stone and Metals. (4) Seminar, 90 minutes; laboratory, four hours. Designed for graduate conservation students. Introduction to deterioration and conservation of metallic artifacts, composite objects containing metals, and stone objects. Corrosion of ancient metals and their deterioration processes, conservation, problems in stability, issues with composite objects, aspects of conservation of stone objects, their deterioration, and stabilization, cleaning, joining, and gap-filling. Ethical issues of restoration of small stone sculpture. Letter grading.

M236. Deterioration and Conservation of In-Situ Archaeological and Cultural Materials. (4) (Formerly numbered 236.) (Same as Materials Science M213.) Seminar, two hours; laboratory, three hours. Requisites: courses M216 (or Materials Science M216) and M250 (or Art History M203F or Materials Science M215). Deterioration processes (both natural and man-made) of in-situ and ex-situ archaeological and cultural decorative surfaces (mainly rock art, wall paintings, polychrome sculpture, decorative architectural elements, and mosaics) and on solutions to mitigate, pacify, or arrest decay mechanisms based on preventive, passive, and remedial solutions (latter based on minimum intervention). Sessions include holistic approaches for preservation of archaeological sites; hydrology of sites; origin and damaging effects of salts; biodegradation; chemical and mechanical weathering; earthquakes, frost, flooding, and vandalism; structural repairs, grouting, cleaning, and desalination; sheltering and limited accessibility; fixing, consolidation, and protective surface treatments. Letter grading.

238. Deterioration and Conservation of Organic Materials II. (4) Seminar, two hours; laboratory, three hours. Requisites: course 232, Archaeology C210. Designed for graduate conservation students. How to recognize characteristic deterioration problems found in organic materials from archaeological and ethnographic contexts and introduction to typical treatments used historically and currently for these materials. Materials include plant and animal fibers, feathers, and quills. Letter grading.

239. Conservation of Inorganic Materials III: Metals. (4) Seminar, 90 minutes; laboratory, four hours. Introduction to conservation problems of metallic artifacts made of iron, steel, cast iron, gold, zinc, and aluminum that have some importance in ethnographic objects. Discussion of problems in conservation treatment of composite metal-organic artifacts, along with practical work on metallic artifacts. Letter grading.

M240. Environmental Protection of Collections. (4) (Formerly numbered 240.) (Same as Information Studies M238.) Lecture, two hours; laboratory, two hours. Required of graduate conservation students. Review of environmental and biological agents of deterioration, including light, temperature, relative humidity, pollution, insects, and fungi. Emphasis on monitoring to identify agents and understanding of materials sensitivities, along with protective measures for collections. Letter grading.

241. Deterioration and Conservation of Organic Materials III. (4) Seminar, two hours; laboratory, three hours. Requisites: courses 232, 238, Archaeology C210. Designed for graduate conservation students. How to recognize characteristic deterioration problems found in organic materials from archaeological and ethnographic contexts and introduction to typical

treatments used historically and currently for these materials. Materials include wood, gourd, paper, bark, and barcloth. Letter grading.

242. Managing Collections for Conservators. (4) Lecture, two hours; activity, two hours. Designed for graduate conservation students. How conservators work together with curators, collections managers, mount makers, designers, and registrars to permit collections to be both accessed and preserved. Letter grading.

M246. Ancient and Historic Metals: Technology, Microstructure, and Corrosion. (4) (Same as Materials Science CM233.) Lecture, two hours; laboratory, 90 minutes. Designed for graduate conservation and materials science students. Processes of extraction, alloying, surface patination, metallic coatings, corrosion, and microstructure of ancient and historic metals. Extensive laboratory work in preparation and examination of metallic samples under microscope, as well as lectures on technology of metallic works of art. Practical instruction in metallographic microscopy. Exploration of phase and stability diagrams of common alloying systems and environments and analytical techniques appropriate for examination and characterization of metallic artifacts. Letter grading.

M250. Techniques and Materials of Archaeological and Cultural Materials: In-Situ and Ex-Situ Architectural Decorative Surfaces. (4) (Formerly numbered 250.) (Same as Art History M203F and Materials Science M215.) Seminar, two hours; laboratory, three hours. Requisite: course M210 or Materials Science M216 or C112. Recommended: course M215. Designed for graduate conservation and art history students. Principles of archaeological conservation of in-situ and ex-situ monumental archaeological and cultural materials, with focus on rock art, wall paintings, polychrome sculpture, decorative architectural elements, and mosaics, through study of their constituent material and techniques in context of their geographical and chronological occurrence, technological developments, physical and conservation history, and physical location. Lectures, seminars, and case-study presentations, museum and site visits, hands-on laboratory experience, and independent research that incorporates literary survey of archaeological and conservation records, scientific data, and ancient treatises. Letter grading.

251. Contemporary Development in Conservation. (4) Seminar, two hours. Designed for graduate conservation students. Seminar series of invited international experts in archaeological and ethnographic conservation, who address contemporary issues in conservation of cultural materials. Letter grading.

596. Directed Individual Studies. (2 to 6) Tutorial, seven hours. Limited to graduate conservation students. Individual guided studies that may include conservation research and/or surveys or treatment projects carried out at Villa laboratories or at local collection or analytical facility. To be arranged with program faculty members, and supervision may be shared between faculty members and outside specialists. Letter grading.

598. M.A. Thesis Preparation. (2 to 12) Tutorial, two hours; laboratory, one hour. Development of research paper on conservation topic or treatment-based investigation that can be theoretical in scope or practically oriented. Letter grading.

DENTISTRY

School of Dentistry

UCLA
AO-111 Dentistry
Box 951762
Los Angeles, CA 90095-1762

(310) 825-9789
<http://www.dentistry.ucla.edu>

No-Hee Park, D.D.S., M.S.D., Ph.D., *Dean*

Scope and Objectives

The UCLA School of Dentistry offers the following courses for general campus students. Dentistry 199 and 199H are individual special studies courses for UCLA undergraduates with definitive research interests and abilities applicable to dentistry. The subject areas include oral biology, clinical research, and dental health policy. Interested students should contact the associate dean of research at (310) 825-6401 to obtain the names and areas of interest of participating School of Dentistry faculty members.

Dentistry

Upper Division Courses

199. Individual Special Studies. (2 to 8) Tutorial, to be arranged. Studies in dentistry and related subject areas appropriate for training of particular students, with required reading assignments or laboratory work leading to final oral or written examination. May be repeated for maximum of 16 units. P/NP or letter grading.

199H. Individual Special Studies (Honors). (2 to 8) Tutorial, to be arranged. Studies in dentistry and related subject areas appropriate for training of particular students, with required paper submitted at end of course in addition to final examination (paper to be of publication quality as judged by course mentor). May be taken for maximum of 8 units. P/NP or letter grading.

Graduate Courses

M300A-M300B-M300C. Child Abuse and Neglect (2-2-1). (Same as Community Health Sciences M245A-M245B-M245C, Education M217G-M217H-M217I, Law M281A-M281B, Medicine M290A-M290B, Nursing M290A-M290B-M290C, and Social Welfare M203F-M203G-M203H.) Lecture, two hours. Course M300A is requisite to M300B, which is requisite to M300C. Intensive interdisciplinary study of child physical and sexual abuse and neglect, with lectures by faculty members of Schools of Dentistry, Law, Medicine, Nursing, and Public Health and Departments of Education and Psychology, as well as by relevant public agencies. Letter grading.

441C. Introduction to Healthcare. (2) Lecture, two hours. Description and analysis of American dental care system from historical, ethical, and legal perspectives. Assessment of how dentistry fits within general provision of healthcare services in America, with comparisons to dental care provisions in other countries. S/U grading.

DANCE

See World Arts and Cultures

DESIGN I MEDIA ARTS

School of the Arts and Architecture

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Willem Henri Lucas, *Chair*

Professors

Rebecca Allen, M.S.
Mark H. Hansen, Ph.D.
Erkki I. Huhtamo, Licensiate in Philosophy
Robert A. Israel, M.F.A.
Willem Henri Lucas
Peter B. Lunenfeld, Ph.D.
Rebeca Mendez, M.F.A.
Vasa V. Mihich
Christian A. Moeller, Dipl. – ING
C.E.B. Reas, M.S.
Jennifer J. Steinkamp, M.F.A.
Victoria Vesna, M.F.A., Ph.D.

Professors Emeriti

James W. Bassler, M.A.
William C. Brown, M.A.
Mitsuru Kataoka, M.A.
J. Bernard Kester, M.A.
Lionel J. March, Sc.D.
John A. Neuhart

Associate Professor

Eddo I. Stern, M.F.A.

Assistant Professor

Ramesh Srinivasan, Ph.D.

Scope and Objectives

The Department of Design I Media Arts offers the Bachelor of Arts and Master of Fine Arts degrees. The B.A. degree focuses on visual communication design, with emphasis on digital media. The M.F.A. degree focuses on media arts. These uniquely challenging programs invite students to balance aesthetic sensibility with logical reasoning, formal theories with practical application, and contemporary thought with historical perspective.

The undergraduate program begins with the study of basic design elements and processes: form, color, drawing, letterforms and typography, motion, and interactivity. Historical perspectives and social issues are also introduced. At the upper division level, studio courses explore current uses of interactive media and new directions in visual communication design, including the study of time and motion, as well as virtual form and space in computer-generated environments. Through a balance of courses in theory, criticism, and practice, students develop an understanding of design principles. Most courses are taught as studios of no more than 20 students, which encourages individual growth and fosters a sense of community within the department.

The two-year Master of Fine Arts (M.F.A.) program fosters mature, professional-quality work utilizing the most current technologies in the field of media arts. The program focuses on develop-

ing an individual thesis project that incorporates in-depth research and theoretical exploration of a topic, culminating in a final exhibition of work.

Facilities and equipment in the department enable students to create work in two, three, and four dimensions. They expand opportunities for students to develop interactive media applications in a networked environment and advanced computer graphics. The department's equipment combines high-end PC and Macintosh computers with facilities for sound and video editing.

The Department of Design I Media Arts reserves the right to hold for exhibition purposes examples of any work done in classes and to retain for the permanent collection of its galleries such examples as may be selected.

Undergraduate Study

Design I Media Arts B.A.

Preparation for the Major

Required: Design I Media Arts 10, 11A, 11B, 21, 22, 23, 24, 25, 28.

The Major

Required: Nine upper division courses, including Design I Media Arts 101, 104, 153A, 154A, 161A, four additional courses selected from 152A through 162, and a minimum of 12 additional upper division elective units selected from C106 through 199. By petition and with approval of the faculty adviser, nonmajor courses may be applied toward major electives.

It is recommended that students have each term's program approved by the departmental adviser.

Note: Consult the *Schedule of Classes* for courses limited to majors only.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Design I Media Arts offers the Master of Fine Arts (M.F.A.) degree in Design I Media Arts.

Design I Media Arts

Lower Division Courses

1. Graphic Design. (2) Studio, 30 hours. Limited to high school students. Basic and advanced photography skills using digital cameras. Alteration/manipulation of photos using techniques from latest version of Adobe Photoshop. Uploading of images on Web or in print. Production of digital and print portfolio of student work. Field trips to surrounding West Los Angeles locales to shoot photos. May be repeated for credit without limitation. Offered only as part of Summer Institute. P/NP grading.

2. Web Design. (2) Studio, 30 hours. Limited to high school students. How Web design works: basic hand coding and creation of personalized homepages with Macromedia Director and Flash software. Photograph scanning and manipulation of images in Adobe Photoshop to incorporate student Web designs. Critique of various Web pages to analyze successful use of Web design and understand enormous potential of Internet. May be repeated for credit without limitation. Offered only as part of Summer Institute. P/NP grading.

3. Game Design. (2) Studio, 30 hours. Limited to high school students. Design and creation of student digital games, beginning with storyboard and learning how to bring game design to life. Creation and animation of three-dimensional characters and objects by using Maya, same software used by professional game developers. Analysis of popular games to understand what is involved in producing modern games. Visits from professional game designer to help guide students in creating their own game designs. May be repeated for credit without limitation. Offered only as part of Summer Institute. P/NP grading.

4. Audio Video Design. (2) Studio, 30 hours. Limited to high school students. Creation of storyboard for short documentary, commercial, or music video. Students shoot and edit their own work by learning fundamentals of preproduction and postproduction using latest digital software, Adobe Premiere and After Effects, to create their work. Burning of DVD of finished production. Visits from professional video producer to help guide students in creating their own videos. May be repeated for credit without limitation. Offered only as part of Summer Institute. P/NP grading.

6. Art/Science and Technology Studio/Laboratory. (4) Studio/laboratory, 40 hours. Limited to high school students. Two-week summer course, including lectures, required screenings, laboratory visits, field trips, and outside study. Exploration of creative aspects of scientific research and innovation to gain broad understanding of impact of science on contemporary art and popular culture, with focus on new sciences of biotechnology and nanotechnology. Development of proposals and ideas that could serve as prototypes for either art projects or scientific research study. P/NP grading.

8. Interact! Media, Art, and Society. (5) Lecture, two hours; screenings, two hours; discussion, one hour; outside study, 11 hours. Introductory course to explore media arts (artworks applying new media technology) and their relationship to culture and society. Students gain broad understanding of media arts from early experiments by futurists and constructivists to most recent phenomena like game art and artistic experiments with wearable and portable media. Development of critical awareness toward pervasive impact of media on everyday life, leading to active, critical, and personalized understanding of mediated world. P/NP or letter grading.

9. Art, Science, and Technology. (5) Lecture, three hours; discussion, one hour; outside study, 11 hours. Exploration and survey of cultural impact of scientific and cultural innovations, technology-driven art inspired by science, and art/science collaborative projects. Introduction to vast array of cutting-edge research taking place on campus; scientific guest lecturers. Emphasis on art projects that use technology and respond to new scientific concepts. P/NP or letter grading.

10. Design Culture: Introduction. (5) Lecture, three hours; outside study, 12 hours. Open to nonmajors. Understanding design process, with emphasis on development of visual language; study of historic, scientific, technological, economic, and cultural factors influencing design in our physical environment. P/NP or letter grading.

11A. Design History I. (5) Lecture, three hours; outside study, 12 hours. Prerequisite: course 10. Survey of evolution of design for mass production from mid-19th century to 1930 in Western Europe and North America. Investigation of wide range of objects of design, including industrial and product design, with focus on graphic design as mirror of social, cultural, and technological ideas within broadly defined cultural context. Particular attention to topics such as designer's role in

production of visual environment, development of design in context of other kinds of visual media, age-old question of art versus design, and many other arguments and theories that continue to echo through contemporary practice. P/NP or letter grading.

11B. Design History II. (5) Lecture, three hours; outside study, 12 hours. Enforced requisite: course 11A. Development of ideas and projects in design, with focus on graphic design primarily in U.S. from 1930 to 1990. Beginning with proposition that there is no one way to practice or analyze contemporary design, lectures focus on evolution of range of issues that include role of designer, practice of design, and consumption of design. Design as art, service, science, politics, and other definitions of practice—and investigation of physical realizations of those practices as way to understand pluralities of design today. P/NP or letter grading.

21. Color. (4) Studio, six hours. Introduction to theories of color to understand interdependence and interaction of color and form, color and quantity, color and placement, and after-image. P/NP or letter grading.

22. Form. (4) Studio, six hours. Interrelation of two-dimensional surfaces and three-dimensional forms with traditional and experimental materials as foundation for creativity; origination and solution of problems. P/NP or letter grading.

23. Drawing. (4) Studio, six hours. Translation of perception through delineation, drawing, and other descriptive media. Emphasis on development of students' motor control by means of freehand and mechanical drawing and by development of analytical and objective observation from life and three-dimensional objects. P/NP or letter grading.

24. Motion. (4) Studio, six hours. Introduction and integration of traditional design tools, camera, and digital technologies for application to visual thinking and fundamentals of design. P/NP or letter grading.

25. Typography. (4) Studio, six hours; outside study, six hours. Focus on three typographic basics: letter, text, and grid. Introduction to fundamentals of typography. Assignments designed to develop understanding of form, scale, and shape of letters as single elements and as texture in layout. Emphasis on grid (structure and layout) and information hierarchy to create successful typographic messages. P/NP or letter grading.

28. Interactivity. (4) Studio, six hours; outside study, six hours. Introduction to concept of interactivity and field of media art that follows history of computer as media for artistic exploration in relation to print, animation, and interactivity. Discussion of potential and ideas related to interactivity, with focus on required skills for creating interactive work. Development of programming skills in service of creating examples of media art. Concepts and skills taught enhance student ability to excel in future courses about Internet, animation, interactive media, and game design. Discussion and readings on four themes—form/programming, motion, interactivity/programming, and interface. P/NP or letter grading.

Upper Division Courses

101. Media Arts: Introduction. (5) (Formerly numbered C101.) Lecture, three hours; outside study, 12 hours. Limited to and required of Design I Media Arts majors. Survey of media arts, their history, aesthetics, and cultural roles from late-19th century to present. Investigation of media arts within broad historical and cultural framework. Discussion of parallels and links with other cultural forms, including history of technology and various art and design practices. P/NP or letter grading.

102. Introduction to Digital Image Creation and Manipulation. (5) Lecture, three hours; outside study, 12 hours. Overview of digital imaging technology and its application in design, media arts, and entertainment from both technical and content-based points of view. P/NP or letter grading.

104. Design and Society: Society and Design. (5) Lecture, three hours; outside study, 12 hours. Preparation: completion of preparation for major courses. Open to nonmajors with consent of instructor. Historical and thematic examination of how design affects society from classical antiquity to 20th century in order to understand historically how each type and application of design related to sociological context in which it existed. Consideration of how various design practices and techniques related to each other. P/NP or letter grading.

C106. Media Studies. (5) Lecture, three hours; outside study, 12 hours. Preparation: completion of preparation for major courses. Overview and contextual understanding of influences and origins of media, communication paradigms, and technologies of past 150 years through reading and discussion of theoretical and historical works. Concurrently scheduled with course C206. Letter grading.

150A-150B. Design I Media Arts Brand Laboratory 1, 2. (5-5) Studio, six hours; outside study, nine hours. Enforced requisites: courses 25, 154A. Development of design research and strategy in areas of organization, culture, and identity. Study of how complex organizations are defined by their public identities and how those identities can be strategized and designed. Topics include following phases of brand identity development: research, brand strategy and planning, communication strategy, implementation guidelines, and design development of specific communication material in all appropriate media (Web, print, and environment). P/NP or letter grading.

152A. Interactive Media 1. (5) (Formerly numbered C152A.) Studio, six hours; outside study, nine hours. Enforced requisite: course 28. Limited to majors. Introduction to computer programming within context of art and design. Exploration of conceptual space enabled by electronic media through exercises, presentations, discussions, and critiques. Weekly exercises balance concept and technique to reveal potential of computer as medium and tool. Experience with programming basics includes procedural and object-oriented programming, two- and three-dimensional graphics, file I/O, color models, and image processing. Letter grading.

C152B. Interactive Media 2. (5) Studio, six hours; outside study, nine hours. Requisite: course 152A. Limited to majors. Computer programming to develop dynamic interactive art and design. Exploration of conceptual space to be enabled by electronic media and through exercises, presentations, discussions, and critiques, culminating in self-motivated final project. Prototyping with diverse software materials and advanced programming techniques. May be repeated once for credit. Concurrently scheduled with course C252B. Letter grading.

153A. Video 1. (5) Studio, six hours; outside study, nine hours. Preparation: completion of preparation for major courses. Use of video technology (video systems, cameras, displays, editing, and storage) to integrate image, sound, time, and motion. Emphasis on expression, continuity, and sequential patterns for video communication. P/NP or letter grading.

153B. Video 2. (5) Studio, six hours; outside study, nine hours. Requisite: course 153A. Use of video technology to create digital short film from design perspective. Emphasis on design theories behind production design, lighting, staging, camera movement and positioning, editing, sound, and marketing. May be repeated once for credit. P/NP or letter grading.

154A. Visual Communication 1. (5) Studio, six hours; outside study, nine hours. Preparation: completion of preparation for major courses. Enforced requisite: course 101 or 104 or C106. Focus on relationship of type to content, image, and materials. Acquisition of knowledge of and sensitivity to typography in context of complex communication problems in print and digital media. Research, concept and content development, and articulation of methodology for visualization. P/NP or letter grading.

154B. Visual Communication 2. (5) Studio, six hours; outside study, nine hours. Enforced requisite: course 154A. Focus on creating compelling messages and

appropriate communication strategies. Development of coherent verbal and visual systems, research, concept and content development, and articulation of methodology for visualization across various media. May be repeated once for credit. P/NP or letter grading.

155. Typography in Motion. (5) Studio, six hours; outside study, nine hours. Preparation: completion of preparation for major courses. Enforced requisites: courses 101 or 104 or C106, and 154A. Integration of print and digital information technology, with continued emphasis on fully integrating visual vocabulary with mastery of conceptual and creative procedures. P/NP or letter grading.

156A. Three-Dimensional: Modeling and Motion 1. (5) Studio, six hours; outside study, nine hours. Preparation: completion of preparation for major courses. Enforced requisite: course 101 or 104 or C106. Through lectures, discussions, and studio work, introduction to basic elements of three-dimensional computer visualization, including modeling, image mapping, lighting, project construction, and rendering. P/NP or letter grading.

156B. Three-Dimensional: Modeling and Motion 2. (5) Studio, six hours; outside study, nine hours. Preparation: completion of preparation for major courses. Enforced requisites: courses 101 or 104 or C106, and 156A. Extension of study of virtual three-dimensional form to include motion, time, and rhythm. Storyboard development, modeling of articulated characters and objects, virtual camera movement, and motion capture. May be repeated once for credit. P/NP or letter grading.

157A. Gaming 1. (5) Studio, six hours; outside study, nine hours. Preparation: completion of preparation for major courses. Enforced requisite: course 101 or 104 or C106. Emphasis on graphic and information design for interactive media applications. Introduction to multimedia and hypertext. Focus on learning role of conceptual designer as visual communicator and design manager. P/NP or letter grading.

157B. Gaming 2. (5) Studio, six hours; outside study, nine hours. Preparation: completion of preparation for major courses. Enforced requisites: courses 101 or 104 or C106, and 157A. Extension of study of interactive media design. Focus on development of advanced conceptual skills in interface design and non-linear narrative utilizing programming techniques such as lists and objects. Builds on skills and concepts acquired in course 157A. May be repeated once for credit. P/NP or letter grading.

158. Environmental Communication. (5) Studio, six hours; outside study, nine hours. Preparation: completion of preparation for major courses. Enforced requisites: courses 101 or 104 or C106, and 154A. Introduction to environmental communication design through experience in design studio. Focus on aesthetic issues concerning creation of design elements incorporating concepts of spatial dimension, human/environmental scale, motion, and time. Overview of history, technologies, and future of environmental graphics. P/NP or letter grading.

159. Senior Project. (5) Studio, six hours; outside study, nine hours. Preparation: completion of preparation for major courses. Enforced requisites: course 101 or 104 or C106, and three courses from 153A through 158. Limited to seniors. Individual studies organized and conceptualized by senior students. Proposal for research and development of design and production of body of work. May be repeated once for credit. Letter grading.

160. Special Topics in Area Studies. (5) Studio, six hours; outside study, nine hours. Preparation: completion of preparation for major courses. Enforced requisite: course 101 or 104 or C106. Selected topics in design and media arts explored through variety of approaches that may include projects, readings, discussion, research papers, and oral presentations. Topics announced in advance. May be repeated for maximum of 15 units. Only 10 units may be applied toward area studies. Letter grading.

161A. Network Media 1. (5) Studio, six hours; outside study, nine hours. Preparation: completion of preparation for major courses. Enforced requisite: course 28.

Emphasis on gaining deeper understanding of technical concepts in networking while learning history of Internet and becoming familiar with state-of-art tools of moment. Storyboard and project development integrated into all aspects of class. Letter grading.

161B. Network Media 2. (5) Studio, six hours; outside study, nine hours. Requisite: course 161A. Intermediate-level course exploring creative production through networked multimedia environments, with focus on WorldWide Web. Builds on skills and concepts acquired in course 161A. May be repeated once for credit. Letter grading.

161C. Network Media 3. (5) Studio, six hours; outside study, nine hours. Requisites: courses 161A, 161B. Advanced-level course exploring creative production through online environments and telepresence. Focus on design of multiuser collaborative spaces. Builds on skills and concepts acquired in course 161B. Letter grading.

162. Sound. (5) Studio, six hours. Enforced preparation: completion of preparation for major courses. Limited to majors. Basic concepts pertaining to sound and digital audio; exploration of how sound impacts human perception. Emphasis on learning practical techniques in creating original sound assets for integration with other media. Topics include physics of sound, DAW (Digital Audio Workstation), recording tools and techniques, electronic sound synthesis, MIDI (Musical Instrument Digital Interface), digital audio formats and standards, how we hear, sound and impact on human orientation. Basic understanding of how to conceptualize and execute sound designs. Students learn techniques to create original sound design elements at intermediate level. Letter grading.

170. Topics in Design I Media Arts. (2 to 8) Lecture, four hours. Examination by faculty members of specific problems relevant to design theory and performance. Topics announced in advance. May be repeated for maximum of 16 units. Letter grading.

180. Proseminar: Design I Media Arts. (5) Seminar, six hours; outside study, nine hours. Open to senior and advanced students. Examination in seminar format of specific problems relevant to design theory and performance. Topics announced in advance. Letter grading.

182. Design Processes. (5) Studio, six hours; outside study, nine hours. Introduction to early development of tools, cloth, shelters, symbols, and embellishments. P/NP or letter grading.

184. Material Processes. (5) Studio, six hours; outside study, nine hours. Use of hand processes and variety of materials to develop simple to complex surface pattern systems and other physical objects as means for creative expression. P/NP or letter grading.

195A-195B. Community or Corporate Internships in Design I Media Arts. (2-4) Tutorial, six and 12 hours. Limited to juniors/seniors. Internship in supervised setting in community agency or business related to design. Students meet on regular basis with instructor and provide periodic reports of their experience. Courses 195A and 195B may be repeated for combined maximum of 8 units. Individual contract with supervising faculty member required. P/NP or letter grading.

198. Honors Research in Design I Media Arts. (4) Tutorial, two hours. Preparation: 3.0 grade-point average overall. Limited to juniors/seniors. Development and completion of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated once for credit. Individual contract required. Letter grading.

199. Directed Research in Design I Media Arts. (2 to 8) Tutorial, four hours. Preparation: 3.0 grade-point average in major. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be taken for maximum of 8 units. Individual contract required. P/NP or letter grading.

Graduate Courses

200. Design I Media Arts Faculty Seminar. (2) Seminar, two hours. Limited to graduate design I media arts students. Designed to familiarize new graduate students with departmental faculty members and their creative work and research to help students select their faculty advisers. S/U grading.

201. Media Arts: Introduction. (5) (Formerly numbered C201.) Lecture, three hours; outside study, 12 hours. Limited to and required of Design I Media Arts majors. Survey of media arts, their history, aesthetics, and cultural roles from late-19th century to present. Investigation of media arts within broad historical and cultural framework. Discussion of parallels and links with other cultural forms, including history of technology and various art and design practices. S/U or letter grading.

C206. Media Studies. (5) Lecture, three hours; outside study, 12 hours. Designed for graduate design I media arts students. Overview and contextual understanding of influences and origins of media, communication paradigms, and technologies of past 150 years through reading and discussion of theoretical and historical works. May be repeated for credit with consent of adviser. Concurrently scheduled with course C106. Letter grading.

207. Mathematical Techniques in Design and Media Arts I. (4) Lecture, three hours. Designed for graduate students. Survey of mathematical techniques used in design and computation theory. Sets, relations, posets, lattices, Boolean and Heyting algebras, formal languages and production systems. May be repeated for credit with consent of adviser. S/U or letter grading.

208. Mathematical Techniques in Design and Media Arts II. (4) Lecture, three hours. Designed for graduate students. Survey of mathematical techniques used in design and computation theory. Theory of descriptive geometry, spatial transformations, matrix representations, symmetry and groups, graphs, maps and triangulations. May be repeated for credit with consent of adviser. S/U or letter grading.

M241. Programming Computer Applications in Architecture and Urban Design. (4) (Formerly numbered CM241.) (Same as Architecture and Urban Design M227A.) Lecture, three hours; outside study, nine hours. Introductory course in logic of computing through experiments in computer graphics programming. Investigation of both procedural and object-oriented approaches to programming. May be repeated for credit with consent of adviser. S/U or letter grading.

M242. Introduction to Geometric Modeling. (4) (Formerly numbered CM242.) (Same as Architecture and Urban Design M227B.) Lecture, three hours; outside study, nine hours. Requisite: course M241. Survey of geometric and three-dimensional modeling, with emphasis on implementation of three-dimensional solids constructions and editing operations. Basic representations and operations on shapes and solids. May be repeated for credit with consent of adviser. S/U or letter grading.

M243. User Interaction Techniques in Design. (4) (Formerly numbered CM243.) (Same as Architecture and Urban Design M227C.) Lecture, three hours; outside study, nine hours. Requisite: course M241 or knowledge of C++ programming language. Programming techniques for implementing modern computer-user interfaces, specifically looking at issues relevant to building software tools for computer-aided problem solving in architecture and design. May be repeated for credit with consent of adviser. S/U or letter grading.

249. Advanced Seminar: Computer Applications. (4) Seminar, three hours. Requisite: course C141 or CM241 or Architecture and Urban Design M227A. Survey of various roles computers may play in design; development of new applications. Topics include representation, search, evaluation functions, and communication. May be repeated for credit with consent of adviser. S/U or letter grading.

252A. Interactive Media 1. (5) (Formerly numbered C252A.) Studio, six hours; outside study, nine hours. Limited to majors. Introduction to computer program-

ming within context of art and design. Exploration of conceptual space enabled by electronic media through exercises, presentations, discussions, and critiques. Weekly exercises balance concept and technique to reveal potential of computer as medium and tool. Experience with programming basics includes procedural and object-oriented programming, two- and three-dimensional graphics, file I/O, color models, and image processing. Letter grading.

C252B. Interactive Media 2. (5) Studio, six hours; outside study, nine hours. Requisite: course 252A. Limited to majors. Computer programming to develop dynamic interactive art and design. Exploration of conceptual space to be enabled by electronic media and through exercises, presentations, discussions, and critiques, culminating in self-motivated final project. Prototyping with diverse software materials and advanced programming techniques. May be repeated once for credit. Concurrently scheduled with course C152B. Letter grading.

254. Dynamic Media. (4) Lecture/studio, six hours. Designed for graduate design I media arts majors. Emphasis on creation of dynamic, digital, and linear works through integration of typography, photography, video, graphics, animation, and sound. May be repeated for credit with consent of adviser. Letter grading.

256. Interactive Environments. (4) Lecture/studio, six hours. Requisites: courses 201 or C206, 254. Designed for graduate design I media arts majors. Emphasis on comprehension of fundamental principles of interactivity and networked environments. May be repeated for credit with consent of adviser. Letter grading.

258. Current State of Technology. (4) Lecture/studio, six hours. Designed for graduate design I media arts majors. Introduction to state-of-art software programs and techniques necessary for design of interactive and multimedia applications. May be repeated for credit with consent of adviser. Letter grading.

M259. Data and Media Arts. (4) (Same as Statistics M237.) Studio, six hours. Requisites: courses 254, 256. Through expanding reach of telecommunications networks and general advancement of data collection technologies, almost every aspect of our lives can be "rendered" in data. Contemplation of use of data in creation of media art and examination of each step in process of data collection, analysis, and representation. Topics include databases and data warehousing, exploratory analysis and visualization, clustering and pattern finding, sampling, and various data mining algorithms. Exploration, through discussions, of fundamental concepts like complexity and randomness. Techniques that organize data, search for patterns, and create meaningful and/or expressive representations. Letter grading.

269. Graduate Seminar. (4) Seminar, four hours. Designed for graduate design I media arts majors. Survey of critical theories in media art and design. Critical examination of student work by peers, faculty members, and expert guests. Must be taken twice for M.F.A. degree. May be repeated for credit with consent of adviser. Letter grading.

270. Media Arts Theory. (5) Lecture, three hours. Enforced requisite: course 201. Media arts is rapidly emerging phenomenon within wider field of contemporary art, yet has been theorized fairly little. While there are numerous books chronicling its past and present forms, there is much less writing about its theoretical and aesthetic underpinnings. Uncertainties begin with concept itself: what is actually meant by media arts? Letter grading.

271. Media Archaeology. (5) Lecture, three hours. Enforced requisite: course C206. Media archaeology is emerging approach within media studies, aiming to excavate little known or misrepresented media cultural phenomena of past, shedding light on apparatus that have been overlooked and/or suppressed by hegemonic versions of media history. Letter grading.

272. Introduction to Art I Science. (5) Seminar, three hours. Enforced requisite: course C206. For past 50 years artists have increasingly moved from being inspired by scientific innovation and discovery to actually collaborating with scientists and even re-

siding and working in science laboratories. History of science in relation to artists' interpretation of scientific work to current works that are created in response to recent developments in biotechnology and nanotechnology. Letter grading.

287. Form and Structure. (2 to 8) Studio or studio/seminar, to be arranged. Exploration of form, with emphasis on expressive experimentation in materials and processes. May be repeated for credit with consent of adviser. Letter grading.

289. Special Topics in Design. (2 to 8) Seminar, to be arranged. Examination of specific problems relevant to design theory and performance. Topics announced in advance. May be taken for maximum of 8 units. Letter grading.

375. Teaching Apprenticeship Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

401. Design I Media Arts Studio I. (2 to 8) Studio, to be arranged. Limited to first-year graduate design I media arts students. Introduction to advanced experimentation and integration of media, technologies, and concepts, with emphasis on development of design work of individual graduate students. May be repeated for credit with consent of adviser. Letter grading.

402. Design I Media Arts Studio II. (2 to 8) Studio, to be arranged. Requisites: courses C206, 254, 256, 401. Continuation of advanced design research based on experimentation integrated into disciplined approach to design process. Focus on development of comprehensive body of work that forms basis of M.F.A. thesis exhibition. May be repeated for credit with consent of adviser. Letter grading.

495. Teaching Assistant Training Practicum. (2) Seminar, three hours; outside study, three hours. Forum for first-year teaching assistants for discussion and exploration of teaching pedagogy and classroom mechanics. Problems and practices of teaching design at college level, as well as role of teaching assistants within department. Designed to help new teaching assistants develop teaching skills and to orient them to department and University policies and resources. May not be applied toward degree requirements. S/U grading.

596. Directed Individual Study or Research. (2 to 8) Tutorial, to be arranged. May be repeated for credit with consent of adviser. S/U or letter grading.

598. M.A. Research and Thesis Preparation. (4 to 12) Tutorial, to be arranged. Designed for second-year M.A. students. May not be applied toward minimum graduate course or unit requirements for M.A. degree. May be repeated for credit. S/U grading.

DISABILITY STUDIES

*Interdisciplinary Minor
College of Letters and Science*

UCLA
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(310) 825-3223
fax: (310) 267-5166
e-mail: disabilitystudies@college.ucla.edu
<http://www.disabilitystudies.ucla.edu>

Helen Deutsch, Ph.D., *Chair*

Faculty Administrative Committee

Emily K. Abel, Ph.D. (*Health Services, Women's Studies*)
Bruce L. Baker, Ph.D. (*Psychology*)
Helen Deutsch, Ph.D. (*English*)
Rachel C. Lee, Ph.D. (*English, Women's Studies*)

Victoria E. Marks, B.A. (*World Arts and Cultures*)
Mary J. O'Connor, Ph.D. (*Psychiatry and
Biobehavioral Sciences*)

Scope and Objectives

The Disability Studies minor introduces undergraduate students to the emerging interdisciplinary field of disability studies, offering a new lens for thinking about the body, society, and culture. The field reorients a marginalized phenomenon at the center of our experience, transforming what is often misconceived as an abnormality of daily life into one of its most basic realities. Faculty members from applied fields in the professional schools (e.g., education, law, medicine, nursing, public health, public policy, and urban planning) collaborate with faculty from academic disciplines across the College of Letters and Science and the School of the Arts and Architecture (e.g., anthropology, English, history, linguistics, psychology, and world arts and cultures) to provide a critical framework for questioning and connecting topics related to disability in these established disciplines.

Through a core course, carefully selected electives, a required two-term internship or research apprenticeship, and a senior capstone project, students in the minor obtain both breadth and depth in their understanding of the concept and practical implications of disability.

Undergraduate Study

Disability Studies Minor

To enter the Disability Studies minor, students must (1) have an overall grade-point average of 2.7 or better and (2) submit an application essay supporting their interest in pursuing the minor. To help plan the internship and course schedule, students are expected to select faculty sponsors with relevant expertise in the academic or service area related to disability studies in which they intend to concentrate. Applications are available at and must be filed with the College Academic Counseling Office, A316 Murphy Hall. For information and questions, e-mail disabilitystudies@college.ucla.edu or call (310) 825-3223.

Required Upper Division Courses (29 to 33 units): (1) Disability Studies 101, (2) two elective courses selected from Anthropology 147, M168, Asian American Studies M117, Community Health Sciences 100, 132, Disability Studies M121, Education 132, English 180, Gerontology M119O, M140, History 179A, Honors Collegium 142, Linguistics C135, Nursing M158, Psychiatry and Biobehavioral Sciences M180, Psychology M107, M119O, 129C, 132A, 133I, M140, M180, Social Welfare M140, 162, Sociology 148, Spanish M165SL, Women's Studies M121, (3) two-term internship or research apprenticeship—Disability Studies 195A and 195B, or 196A and 196B—in a community-based agency that provides services or support for persons with disabilities or in an institution or agency at the local, state, or federal level responsible for policy on disability issues

or collaboration on a research project focused on an area of disability studies scholarship (a department-based 195 or 196 for two terms may be substituted by petition approved by the Faculty Administrative Committee); students also enroll concurrently in Disability Studies M194 during one term of the internship/research, and (4) disability studies capstone requirement in which students enroll in either Disability Studies 198 or 199 or an approved department 198 or 199 for 6 to 8 units and complete a senior project or honors thesis on a disability studies topic.

No more than one upper division course may be applied toward both this minor and a major or minor in another department or program. Each minor course (except internships) must be taken for a letter grade, and students must have an overall grade-point average of 3.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Disability Studies

Upper Division Courses

101. Perspectives on Disability Studies. (5) Seminar, three hours. Creation of critical framework for understanding concept of disability from sampling of disciplinary perspectives. Organized around productive and central tension in disability studies—between disability as lived subjective experience that is both individual and communal, and disability as objective, medical, legal, and sometimes stigmatized category. Students encouraged to make connections between units and to create their own perspectives on disability in field that defines itself by how it changes. Letter grading.

102. Disability and Violence. (4) Seminar, three hours. Relationship between disability and violence from three angles: (1) review of disproportionate incidence of violence committed against people with disabilities, whether specifically as form of hate crime or based on dependency and/or vulnerability that accompany some types of disability, (2) study of role of disability and particularly mental illness in representations of criminality and violence, and (3) disablement or emergent disability (injuries, illnesses, and impairments created by social inequity) as consequence of intersecting forms of racial, gender, sexual, and class subordination, or as result of state or interpersonal violence. Consideration of possible coalition-based strategies for challenging systemic subordination and prospects for improving disability-consciousness across social movement efforts and campaigns. P/NP or letter grading.

M121. Topics in Gender and Disabilities. (4) (Same as Women's Studies M121.) Lecture, three and one half hours. Limited to juniors/seniors. Ways in which issues of disability are affected by gender, with particular attention to various roles, positions, and concerns of women with disabilities. Approach is intersectional, exploring how social categories of class, race, ethnicity, religion, age, sexuality, nationality, and citizenship affect and are affected by gender and disability. Topics may include law (civil rights, nondiscrimination), representation (arts, literature), education, public policy, health. May be repeated for credit with topic and instructor change. P/NP or letter grading.

M130. Disability Policy and Services in Contemporary America. (4) (Same as Social Welfare M165.) Lecture, three hours. Limited to juniors/seniors. Growing numbers of people of all ages with disabilities are leading active and productive lives in American communities. Many others are struggling to lead such lives. Who are people with disabilities in contemporary America? How has U.S. responded over time to various needs and aspirations of people with disabilities, young and old? What demands have been made over

time by disability advocates? How has government addressed demands of advocates for various disability populations? What do we know about extent to which public policies and programs are responsive to people in need? How do demographics, economics, and politics continue to influence evolving public policy responses? P/NP or letter grading.

M194. Capstone Research Seminar. (2) (Formerly numbered 194.) (Same as Civic Engagement M194.) Seminar, two hours. Enforced requisite: course 195A or 195B. Required of students pursuing Disability Studies minor. Integration of off-campus work with academic theories and concepts within field of disability studies. Students report on their internship experiences and analyze relationship between their internship and issues of policy, ethics, systemic responses to community needs, or personal and intellectual transformations. Students identify one faculty mentor and develop proposal for required capstone research project. Letter grading.

195A-195B. Community Internships in Disability Studies I, II. (4-4) Tutorial, one hour; fieldwork, eight hours. Limited to juniors/seniors. Designed to provide academic context for off-campus work in one of three types of government or nonprofit settings: (1) direct service to disabled individuals or their families, (2) research related to disability studies, or (3) work on policy issues related to disability studies. Faculty sponsor and teaching assistant (TA) construct series of reading assignments that examine disability studies issues related to meaningful work at internship site, including analysis of issues such as history and development of publicly funded services, public policymaking process, legislation that organizes work of organization, ethics, or other interdisciplinary contemporary issues. Students meet biweekly with TA and submit weekly journals. Final paper required each term. Individual contract with supervising faculty member required. P/NP or letter grading.

196A-196B. Research Apprenticeship in Disability Studies. (4-4) Tutorial, one hour. Limited to junior/senior Disability Studies minors. Entry-level research apprenticeship under guidance of faculty mentors affiliated with Disability Studies minor. Collaboration with faculty mentors on their research in area related to disability studies. Individual contract required. Letter grading.

198. Honors Research in Disability Studies. (6 to 8) Tutorial, one hour. Enforced requisite: course 194. Limited to juniors/seniors. Required capstone course to Disability Studies minor for students pursuing College Honors. Development and completion of honors thesis or comprehensive research project under direct supervision of faculty member. Individual contract required. Letter grading.

199. Senior Project in Disability Studies. (6 to 8) Tutorial, one hour. Enforced requisite: course 194. Limited to juniors/seniors. Required capstone course to Disability Studies minor. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. Letter grading.

EARTH AND SPACE SCIENCES

College of Letters and Science

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Craig E. Manning, Ph.D., *Chair*

Professors

Vassilis Angelopoulos, Ph.D.
Peter Bird, Ph.D.
Friedrich H. Busse, Ph.D., *in Residence*
Paul M. Davis, Ph.D.
T. Mark Harrison, Ph.D.
Raymond V. Ingersoll, Ph.D.
David D. Jackson, Ph.D.
David C. Jewitt, Ph.D.
Craig E. Manning, Ph.D.
Kevin D. McKeegan, Ph.D.
Robert L. McPherron, Ph.D.
William I. Newman, Ph.D.
David A. Paige, Ph.D.
Gilles F. Peltzer, Ph.D.
Edward J. Rhodes, Ph.D.
Bruce N. Runnegar, Ph.D.
Christopher T. Russell, Ph.D.
J. William Schopf, Ph.D.
Gerald Schubert, Ph.D.
Laurence C. Smith, Ph.D.
Raymond J. Walker, Ph.D., *in Residence*
John T. Wasson, Ph.D.
An Yin, Ph.D.
Edward D. Young, Ph.D.

Professors Emeriti

Orson L. Anderson, Ph.D.
Donald Carlisle, Ph.D.
Paul J. Coleman, Jr., Ph.D.
Wayne A. Dollase, Ph.D.
Clarence A. Hall, Jr., Ph.D.
Isaac R. Kaplan, Ph.D.
Margaret G. Kivelson, Ph.D.
Arthur L. Montana, Ph.D.
Gerhard Oertel, Dr. rer. nat.
Walter E. Reed, Ph.D.
John L. Rosenfeld, Ph.D.
Ronald L. Shreve, Ph.D.

Associate Professors

Jonathan M. Aurnou, Ph.D.
Abby Kavner, Ph.D.
Jean-Luc C. Margot, Ph.D.
Edwin A. Schauble, Ph.D.

Assistant Professors

Caroline D. Beghein, Ph.D.
Jonathan L. Mitchell, Ph.D.
Ulrike Seibt, Ph.D.
Aradhna K. Tripathi, Ph.D.

Adjunct Professors

Paul M. Merifield, Ph.D.
Mark B. Moldwin, Ph.D.

Adjunct Associate Professor

Axel K. Schmitt, Ph.D.

Scope and Objectives

The disciplines of geology, geochemistry, geophysics, paleobiology, and space physics are concerned with the structure and evolution of the solar system, Earth, and life: essentially, the physical environment and its interaction with biota. These studies entail the application of fundamental physics and chemistry to a broad subject area stretching from astronomy at one extreme to biology at the other. Areas that are emphasized at UCLA include isotope and trace element analyses, petrology and mineralogy, sedimentology, paleobiology and organic geochemistry, structural geology and tectonophysics, seismology, the Earth's interior, planetary physics, and space plasmas.

The variety of techniques applied lead to several concentrations within the five main disciplines. Students completing their studies with a B.S. or M.S. degree usually are employed by industry. Many are employed in environment-

related activities; others are involved in mineral or oil exploration or in construction. Students attaining the Ph.D. degree are usually employed by universities or governmental and industrial research groups.

The Bachelor of Arts program in Earth and Environmental Science is intended to provide a broad background in Earth sciences that is especially appropriate for students intending to become K through 12 teachers in Earth, physical, or life sciences. It may also be of interest to students who plan careers in business, dentistry, environmental sciences, government, journalism, law, medicine, or public health. Those who intend to become professional geologists, geochemists, or geophysicists and/or to continue into graduate studies in Earth or space sciences are urged to pursue one of the B.S. degrees.

Undergraduate Study

Two of the majors offered in the Earth and Space Sciences Department are designated capstone majors: Geology and Geology/Engineering Geology. In both programs students are required to use skill and knowledge sets from previous coursework to complete a field-based research project from conception to written report. Projects must be placed into context within the current state of understanding, and results are presented at a research symposium or published as a brief report.

Earth and Environmental Science B.A.

Preparation for the Major

Required: Earth and Space Sciences 1 or 1F or 1H, 5, 61; Chemistry and Biochemistry 14A, 14B, and 14BL, or 20A, 20B, and 20L; Life Sciences 1; Mathematics 3A, 3B, and 3C, or 31A and 31B; Physics 1A, 1B, and 4AL, or 6A, 6B, and 6C, or 6AH, 6BH, and 6CH. Each course must be passed with a minimum grade of C-.

Transfer Students

Transfer applicants to the Earth Sciences major with 90 or more quarter units (60 semester units) must have completed one introductory Earth sciences course, two general chemistry courses with laboratory for majors, and one year of calculus. One introductory biology course with laboratory and one year of calculus-based physics with laboratory are recommended.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Three courses from Earth and Space Sciences 111, 112, 116, 119; three additional upper division courses from Earth and Space Sciences other than 100; three courses from Geography 100 and 100A, 101 and 101A, 104, 105 and 105A, M107, M109, 110, 120, 121, 124, 125, M127, M131.

Geology B.S.

Capstone Major

Preparation for the Major

Required: Earth and Space Sciences 1 or 1F or 1H, 51, 61; Chemistry and Biochemistry 14A, 14B, and 14BL, or 20A, 20B, and 20L; Life Sciences 1; Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A; Physics 1A, 1B, 1C, 4AL, and 4BL, or 6A, 6B, and 6C; Civil and Environmental Engineering 15 or Program in Computing 10A or knowledge of Fortran or C++ demonstrated by examination. Each course must be passed with a minimum grade of C–.

Transfer Students

Transfer applicants to the Geology major with 90 or more quarter units (60 semester units) must have completed one introductory Earth sciences course, two general chemistry courses with laboratory for majors, and one year of calculus. One introductory biology course with laboratory, one year of calculus-based physics with laboratory, and one introductory computer programming course are recommended.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Earth and Space Sciences 103A, 103B, 103C, 111, 112, 116, 133, 135, one capstone field research course (121), and three additional courses from C106, C107, C109, 119, 125, C126, C132, 134, 136C, 137, 139, C141, 150, 152.

Students with an interest in nonrenewable natural resources are advised to take courses 136C, 137, 139, C141, and/or 150. Those interested in geochemistry are advised to take Earth and Space Sciences 103C, C107, C109, 119, 121, C126, C132, and/or Chemistry and Biochemistry 30A, 30B, 110A, 110B, 114, 153A, 184.

Geology/Engineering Geology B.S.

Capstone Major

Preparation for the Major

Required: Earth and Space Sciences 1 or 1F or 1H or 5 or 8 or 9 or 15, 51, 61; Chemistry and Biochemistry 20A, 20B, 20L; Mathematics 31A, 31B, 32A, 33A; Physics 1A, 1B, 1C, 4AL, 4BL; Civil and Environmental Engineering 15 or Program in Computing 10A or knowledge of Fortran or C++ demonstrated by examination. *Recommended:* Mathematics 32B. Each course must be passed with a minimum grade of C–.

Transfer Students

Transfer applicants to the Geology/Engineering Geology major with 90 or more quarter units (60 semester units) must have completed one introductory Earth sciences course, two general chemistry courses with laboratory for ma-

jors, and one year of calculus. One introductory biology course with laboratory, one year of calculus-based physics with laboratory, and one introductory computer programming course are recommended.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Earth and Space Sciences 103A, 103B, 111, 112, 135, 139; Civil and Environmental Engineering 108, 120, 121, 150; one capstone field research course (Earth and Space Sciences 121); one course from Earth and Space Sciences C126, C132, 134, 136C, 137, C141, 150, Civil and Environmental Engineering 128L, 151, 155, Geography 100.

Geology/Paleobiology B.S.

Preparation for the Major

Required: Earth and Space Sciences 1 or 1F or 1H, 3, 16 or 17, 51, 61; Chemistry and Biochemistry 14A, 14B, 14BL, 14C, and 14CL, or 20A, 20B, 20L, 30A, and 30L; Life Sciences 2, 3, 4; Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A; Physics 1A, 1B, and 4AL, or 6A and 6B. Each course must be passed with a minimum grade of C–.

Transfer Students

To be admitted as Geology/Paleobiology majors, transfer students with 90 or more quarter units (60 semester units) must have completed one introductory Earth sciences course, one introductory biology course with laboratory, two general chemistry courses with laboratory for majors, and one year of calculus. One calculus-based physics course with laboratory is recommended.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Earth and Space Sciences 103B, 111, 112, 116, M118, 133; seven courses from Biostatistics 110A, 110B, Chemistry and Biochemistry 153A, 153L, Earth and Space Sciences C109, 119, 121, C132, C141, Ecology and Evolutionary Biology 101, 102, 105, 110, 111, 117, 120, 121, 122, 123, 147, 148.

Geophysics/Applied Geophysics B.S.

Preparation for the Major

Required: Earth and Space Sciences 1 or 1F or 1H, 51, 61; Chemistry and Biochemistry 20A; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 1C, 4AL, 4BL; Civil and Environmental Engineering 15 or Program in Computing 10A or knowledge of Fortran or C++ demonstrated by examination. Each course must be passed with a minimum grade of C–.

Transfer Students

Transfer applicants to the Geophysics/Applied Geophysics major with 90 or more quarter units (60 semester units) must have completed one introductory Earth sciences course, one general chemistry course with laboratory for majors, and one year of calculus. A second year of calculus, one year of calculus-based physics with laboratory, and one introductory computer programming course are recommended.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Earth and Space Sciences 111, 112, 136A, 136B, 136C, 152; Physics 105A, 105B, 110A, 110B, 114; two courses from Earth and Space Sciences 103A, 103B, C107, C132, 134, 137, 139, 153, 154, 155, 205, 265, Physics 112, 115A, 116, 131, 132, Statistics 100A, 100B, or other courses with consent of adviser.

Geophysics/Geophysics and Space Physics B.S.

Preparation for the Major

Required: Earth and Space Sciences 1 or 1F or 1H, 9; Chemistry and Biochemistry 20A, 20B, 20L; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 1C, 4AL, 4BL, 17, 18L; Civil and Environmental Engineering 15 or Program in Computing 10A or knowledge of Fortran or C++ demonstrated by examination. Each course must be passed with a minimum grade of C–.

Transfer Students

Transfer applicants to the Geophysics/Geophysics and Space Physics major with 90 or more quarter units (60 semester units) must have completed one introductory Earth sciences course, one general chemistry course with laboratory for majors, and one year of calculus. A second year of calculus, one year of calculus-based physics with laboratory, and one introductory computer programming course are recommended.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Earth and Space Sciences 134, M140, 152, 153, 154, 155; Physics 105A, 105B, 110A, 110B, 112, 131; two upper division courses from the physical sciences, engineering, or mathematics (must be approved by the undergraduate adviser).

Students planning to do graduate work in specialized careers in Earth sciences should, when possible, take appropriate courses in departments outside the major in addition to those already specified. Suggested graduate programs for various fields of emphasis are available in the Student Affairs Office, 3683 Ge-

ology, and provide guidelines in selecting upper division courses.

Qualified undergraduate students may, with consent of their advisers and the instructor, take Earth and Space Sciences graduate courses numbered from 200A through 248.

Honors in Geology or Geophysics

The honors program in geology or geophysics is intended to provide exceptional students an opportunity for advanced research and study under the tutorial guidance of a faculty member. Requirements for admission to candidacy are the same as those required for admission to the Honors Programs of the College of Letters and Science. Qualified students wishing to enter the program must submit a completed application form to the departmental honors committee near the end of their junior year. Honors in geology or geophysics are awarded at graduation to those students who have a cumulative grade-point average of 3.5, have completed at least 90 graded units at the University of California, and have completed a minimum of two terms (8 units) of Earth and Space Sciences 198 leading to the preparation of a satisfactory honors thesis. Students demonstrating exceptional ability are awarded highest honors.

Earth and Environmental Science Minor

In the Earth and Environmental Science minor students study the interaction of the solid Earth, oceans, and atmosphere with human activities. The minor provides background in Earth sciences that is especially appropriate for students intending to become K through 12 teachers in Earth, physical, or life sciences. It may also be of interest to students who plan careers in business, dentistry, environmental sciences, government, journalism, law, medicine, or public health.

To enter the minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Courses (8 units): Earth and Space Sciences 1, one course from 5, 13, 15, or 61.

Required Upper Division Courses (20 units minimum): Five courses from Earth and Space Sciences 101, 112, C113, 139, 150, 153.

A minimum of 20 upper division units applied toward the minor requirements must be in addition to units applied toward major or minor requirements in another department or program.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Geochemistry Minor

Geochemistry emphasizes use of minerals, magmas, elements, and isotopes to date events, determine rates, and track matter

through its cycles in the planets and biosphere. These skills are valuable in environmental and natural-resource work and anthropology, as well as in studying the histories of the planets.

To enter the Geochemistry minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Courses (8 units): Earth and Space Sciences 1, 51.

Required Upper Division Courses (20 to 26 units): Two courses from Earth and Space Sciences C106, C107, C109, and three courses from 103A, 103B, 103C, C106 or C107 or C109 (whichever course was not applied above), 152, 153.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Geology Minor

Geology is the study of the surface of the Earth and the rocks and processes that created it. Field methods, interpretation of rocks, and modern plate-tectonic models are emphasized, with the goals of finding valuable or hazardous materials and inferring geologic history. These skills are valuable in engineering, urban planning, and environmental and resource studies.

To enter the Geology minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Courses (8 to 9 units): Earth and Space Sciences 1 or 1F, 61.

Required Upper Division Courses (22 units): Earth and Space Sciences 112, 119, and three courses from C107, 116, 125, C132, 133, 134, 139, 150.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Geophysics and Planetary Physics Minor

Classical physics, supported by field data, mathematics, and computing, is used to understand diverse processes from ocean circulation and earthquakes to the formation of planets and the flow of particles and electromagnetic fields in space. These skills are valuable in environmental, engineering, and resource studies and more broadly in any kind of career that requires quantitative analysis.

To enter the Geophysics and Planetary Physics minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Courses (12 units): Earth and Space Sciences 1, 8, 9.

Required Upper Division Courses (20 units): Earth and Space Sciences 134, 135, and three courses from M140, 152, 153, 154, 155.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Earth and Space Sciences offers Master of Science (M.S.), Candidate in Philosophy (C.Phil.), and Doctor of Philosophy (Ph.D.) degrees in Geochemistry, Master of Science (M.S.), Candidate in Philosophy (C.Phil.), and Doctor of Philosophy (Ph.D.) degrees in Geology, and Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Geophysics and Space Physics.

Earth and Space Sciences

Lower Division Courses

1. Introduction to Earth Science. (4) Lecture, three hours; laboratory, two hours. Not open to students with credit for or currently enrolled in course 1F, 1H, or 100. Elements of Earth science; study of Earth materials; nature and interpretation of geologic evidence; study of geologic processes; historical aspects of geology. P/NP or letter grading.

1F. Earth Science with Fieldwork. (5) Lecture, three hours; laboratory, two hours; two field days. Not open to students with credit for or currently enrolled in course 1, 1H, or 100. Elements of Earth science; study of Earth materials; nature and interpretation of geologic evidence; study of geologic processes; historical aspects of geology. Introduction to field study of selected problems in geologic history. P/NP or letter grading.

1H. Fundamentals of Earth Science. (4) Lecture, three hours; laboratory, two hours; two field days. Not open to students with credit for or currently enrolled in course 1 or 100. Particularly recommended for future physical sciences majors with strong high school or some lower division preparation. Introduction to Earth materials, physical geology, and tectonics, with examples of geophysical and geochemical methods. P/NP or letter grading.

3. Astrobiology. (5) Lecture, three hours; discussion, one hour; two field days. Origin, evolution, distribution, and future of life on Earth and in universe, paralleling major scientific initiative of NASA. Course material primarily from planetary and Earth science, paleontology and biology, astronomy, chemistry, and physics, with relatively little from mathematics. P/NP or letter grading.

5. Environmental Geology of Los Angeles. (4) Lecture, three hours; discussion, two hours; field trips. Geologic hazards and natural resources of greater Los Angeles region. Topics include Los Angeles geologic hazards such as earthquakes, landslides, and floods; Southern California oil fields; gold and gem mining in region; local beach processes; and Los Angeles water resource problems. Field trips to San Andreas fault, California aqueduct, active landslides, and historic gold mines. P/NP or letter grading.

7. Perils of Space: Introduction to Space Weather.

(4) Lecture, four hours. Concepts of plasma physics. Dynamic sun, solar wind, and Earth's magnetosphere and ionosphere. Space storms and substorms and their impacts on astronauts, spacecraft, and surface power and communication grids. P/NP or letter grading.

8. Earthquakes. (5) Lecture, three hours; laboratory, one hour; one field day. Causes and effects of earthquakes. Plate motion, frictional faulting, earthquake instability, wave propagation, earthquake damage, and other social effects. Hazard reduction through earthquake forecasting and earthquake-resistant design. P/NP or letter grading.

9. Solar System and Planets. (4) Lecture, three hours; discussion, one hour. Properties of sun, planets, asteroids, and comets. Astronomical observations relevant to understanding solar system and its origin. Dynamical problems, including examination of fallacious hypotheses. Meteoritic evidence regarding earliest history of solar system. Chemical models of solar nebula. Space exploration and its planning. P/NP or letter grading.

10. Exploring Mars, Red Planet. (4) Lecture, three hours; discussion, one hour. History and future of Mars exploration, origin of planet, surface materials, and atmosphere. History of climate. Questions regarding water and life. Scientific and practical issues in mission design. P/NP or letter grading.

13. Natural Disasters. (5) Lecture, three hours; discussion, one hour; one field day. Global urbanization together with historical demographic population shift to coastal areas, especially around Pacific Ocean's "Ring of Fire," are placing increasingly large parts of this planet's human population at risk due to earthquakes, volcanoes, and tsunamis. Global climate change combines with variety of geologic processes to create enhanced risks from catastrophic mass movements (e.g., landslides), hurricanes, floods, and fires. Exploration of physical processes behind natural disasters and discussion of how these natural events affect quality of human life. P/NP or letter grading.

15. Blue Planet: Introduction to Oceanography. (5) Lecture, three hours; laboratory, two hours. Not open for credit to students with credit for or currently enrolled in Ecology and Evolutionary Biology 25. General introduction to geological, physical, chemical, and biological processes and history of Earth's global ocean system. P/NP or letter grading.

16. Major Events in History of Life. (4) Lecture, three hours; laboratory, two hours. Designed for nonmajors. History of life on Earth as revealed through fossil record. P/NP or letter grading.

17. Dinosaurs and Their Relatives. (4) Lecture, three hours; laboratory, two hours; one optional field trip. Designed for nonmajors. Exploration of biology, evolution, and extinction of dinosaurs and close relatives, in context of history of biosphere. Information from paleontology, biology, and geology. P/NP or letter grading.

20. Natural History of Southern California. (5) Lecture, two hours; laboratory, three hours; five field weekends. Identification, distribution, diversity of native plants and communities; identification and interpretation of rocks, minerals, and geologic features and geologic history of physiographic regions of Southern California. Emphasis on field-based learning. P/NP or letter grading.

51. Mineralogy: Earth and Planetary Materials. (5) (Formerly numbered 51A, 51B.) Lecture, three hours; laboratory, four hours. Enforced prerequisite: course 1 or 1H. Recommended: completion of chemistry requirement. Principles of mineralogy. Mineral structure and bonding and crystal chemistry, with focus on materials of interest for Earth and planetary sciences and major rock-forming minerals. Laboratory study of relationship between mineral structure and properties, including hand sample identification, microscopy (optical and electron), X-ray diffraction, and spectroscopy techniques. P/NP or letter grading.

61. Geologic Maps. (4) Lecture, two hours; laboratory, three hours; five field days. Enforced prerequisite: course 1 or 1F or 1H. Planning, creation, and inter-

pretation of geologic maps, including both practical and philosophical problems that arise. Topographic and geologic mapping in field. Interpretation of published maps in laboratory. P/NP or letter grading.

Upper Division Courses

100. Principles of Earth Science. (4) Lecture, three hours. Designed for nonmajors. Not open to students with credit for course 1 or 1H. Fundamentals of physical geology and Earth history; major problems of geology, such as continental drift and development of large-scale features of Earth; physical and biological evolution. P/NP or letter grading.

101. Earth's Energy: Diminishing Fossil Resources and Prospects for Sustainable Future. (4) Lecture, three hours; laboratory, two hours; two optional field trips. Preparation: one lower division atmospheric sciences, chemistry, Earth sciences, or physics course. Not open for credit to students with credit for course 101F. Earth's energy resources (fossil fuels and alternatives) from Earth science and sustainability perspective. P/NP or letter grading.

101F. Earth's Energy with Fieldwork. (5) Lecture, three hours; laboratory, two hours; two required field trips. Preparation: one lower division atmospheric sciences, chemistry, Earth sciences, or physics course. Not open for credit to students with credit for course 101. Earth's energy resources (fossil fuels and alternatives) from Earth science and sustainability perspective. P/NP or letter grading.

103A. Igneous Petrology. (6) Lecture, two to three hours; laboratory, six hours; field trips. Requisites: course 51, Chemistry 14B and 14BL, or 20B and 20L, Mathematics 3B or 31B. Mineralogy, chemical composition, and field occurrence of igneous rocks with reference to their origin by melting in earth. Introduction to thermodynamics as applied to petrology. Formation of magma, its movement, eruption, crystallization, and chemical evolution. Petrologic structure of crust and mantle and its relation to seismology. Overview of petrological and chemical evolution of Earth, moon, and other planets from their origin to present. P/NP or letter grading.

103B. Sedimentary Petrology. (6) Lecture, two to three hours; laboratory, six hours; field trips. Requisite: course 103A. Recommended: course 61. Study of sedimentary rocks based on characteristics of sedimentary particles and dynamics of depositional processes. Lectures focus on development of depositional facies models, and laboratories emphasize recognition of sedimentary deposits from each major depositional facies. P/NP or letter grading.

103C. Metamorphic Petrology. (6) Lecture, two to three hours; laboratory, six hours; field trips. Requisite: course 103B. Interpretation of metamorphic rocks based on field occurrence, mineralogical composition, texture, and application of physical and chemical principles. P/NP or letter grading.

C106. Physical Geochemistry. (4) Lecture, three hours. Requisite: course 51. Basic principles of physical chemistry for geologic applications. Thermodynamics and kinetics of reactions among minerals, natural waters, and magmas; construction and interpretation of phase diagrams; case studies of important geochemical and environmental issues. Concurrently scheduled with course C206. P/NP or letter grading.

C107. Geochemistry. (4) Lecture, three hours; discussion, one hour. Designed for junior/senior and graduate physical sciences students. Origin and abundance of elements and their isotopes; distribution and chemistry of elements in Earth and its environment. Concurrently scheduled with course C207. P/NP or letter grading.

C109. Isotope Geochemistry. (4) Lecture, three hours; discussion, one hour. Designed for junior/senior and graduate physical and biological sciences students. Theoretical aspects of isotope behavior: stable and radiogenic isotopes. Principles of geochronology. Use of isotopes as tracers in crust and mantle processes. Stable isotopes as indicators of environment and paleoclimate. Concurrently scheduled with course C209. P/NP or letter grading.

111. Stratigraphic and Field Geology. (6) Lecture, two hours; laboratory, three hours; fieldwork, one day per week. Requisite: course 61. Principles of stratigraphy; geologic mapping of selected area; preparation of geologic report. P/NP or letter grading.

111G. Field Geology. (2 to 4) Lecture, two hours; laboratory, three hours; fieldwork, one day per week. Designed for graduate students. Geologic mapping, principles of stratigraphy, structural geology, and map interpretation. S/U or letter grading.

112. Structural Geology. (6) Lecture, three hours; laboratory, six hours. Requisite: course 1. Recommended: course 51. Planar and linear structures at different scales in sedimentary, metamorphic, and igneous rocks. Faults and folds, their description, classification, and kinematic and dynamic analysis. Deformation, strength, fracture, and rheological properties of rocks. P/NP or letter grading.

C113. Biological and Environmental Geochemistry. (4) Lecture, three hours. Requisites: Chemistry 14A and 14B (or 20A and 20B), Mathematics 3A, 3B, and 3C (or 31A and 31B). Recommended: at least one lower division Earth and space sciences course. Intended for junior/senior life and physical sciences students. Study of chemistry of Earth's surface environment and interplay between biology, human activity, and geology. Introduction to origin and composition of Earth, including atmosphere, crust, and hydrosphere. Examination of how these reservoirs are affected by biological cycles and feedbacks to biological evolution and diversity. Local and global-scale movements of biologically important elements like carbon, nitrogen, and phosphorus. Concurrently scheduled with course C213. P/NP or letter grading.

116. Paleontology. (4) Lecture, three hours; laboratory, three hours; field trips. Requisite: Life Sciences 1 or 2. Review of major groups of fossil organisms and their significance in geology and biology. P/NP or letter grading.

M118. Advanced Paleontology. (4) (Same as Ecology and Evolutionary Biology M145.) Lecture, three hours. Requisite: course 116 or Ecology and Evolutionary Biology 110 or 117. Consideration of major factors that have influenced history of life, including analytical approaches to analyzing patterns in fossil record, nature of rock record, and contribution of data from stable isotopes, functional morphology, phylogenetics, and developmental biology. P/NP or letter grading.

119. Continental Drift and Plate Tectonics. (4) Lecture, three hours. Requisite: course 1 or 1H or 100. Designed for juniors/seniors. Classical concepts of sedimentation and tectonics. Alfred Wegener's theory of continental drift and ensuing controversy. Physiography of continents and oceans. Geophysical evidence regarding nature of ocean floor. Magnetic stratigraphy. Seafloor spreading. Plate tectonic model and its driving mechanisms. Tectonic, igneous, and metamorphic processes at plate boundaries. P/NP or letter grading.

120. Rubey Colloquium: Major Advances in Earth Science. (4) Lecture, three hours. Designed for juniors/seniors. Lectures on major advances in Earth science offered by distinguished authorities (including regular faculty members). Supervision of continuity and assessment of student performance by faculty member. Content varies from year to year. If laboratory work is required, course 199 must be taken concurrently. P/NP or letter grading.

121. Advanced Field Geology. (8) Lecture, one hour (Spring Quarter); fieldwork, five weeks (Summer Quarter). Requisites: courses 61, 103A, 103B, 111, 112. Problems in field geology; preparation of geologic maps and cross-sections; preparation of written geologic reports in field and written summary geologic report on selected area. P/NP or letter grading.

125. Volcanoes. (4) Lecture, three hours; laboratory, three hours; field trip(s). Requisite: course 1 or 1F or 1H. Recommended: course 103A, Physics 1A or 1AH. Types of volcanism. Physics of magma chambers, volcanic plumbing, explosive and effusive eruptions as illustrated by historical examples. Practical methods of volcano monitoring, with field trip. P/NP or letter grading.

C126. Advanced Igneous Petrology. (4) Lecture, three hours; laboratory, three hours; field trips. Requisite: course 103A. Understanding genesis of igneous rocks based on geochemical, tectonophysical, and other geological evidence and principles. Concurrently scheduled with course C226. P/NP or letter grading.

C132. Hydrogeology. (4) Lecture, three hours; laboratory, one hour. Requisite: Mathematics 32A. Quantitative basis for studying fluid flows in geologic processes. Groundwater problems and pore-fluid pressure evolution. Concurrently scheduled with course C232. P/NP or letter grading.

133. Historical and Regional Geology. (4) Lecture, three hours; discussion, two hours; field trips. Requisite: course 111. Principles of historical geology. Physical evolution of Earth, especially North America. One area of Earth to be investigated in detail, with emphasis on its geologic evolution through time. P/NP or letter grading.

134. Computing in Earth and Space Sciences. (4) Lecture, three hours; laboratory, three hours. Preparation: knowledge of Fortran 90 or C++. Original programming and application of software to generate and test hypotheses with nonideal or incomplete data sets. Interpolation/extrapolation with graphics to generate hypotheses; forward modeling from fundamental equations to explore implications; probabilistic testing of models against data. Examples and exercises from Earth and space sciences. Introduction to software used in research and industry. P/NP or letter grading.

135. Introduction to Applied Geophysics. (4) Lecture, three hours; laboratory, one hour. Preparation: knowledge of Fortran 90 or C++. Requisites: Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A, Physics 1A, 1B, and 1C, or 1AH, 1BH, and 1CH, or 6A, 6B, and 6C, and 4AL, 4BL. Not open for credit to students with credit for course 136A. Principles and techniques of gravimetric, seismic, magnetic, and other geophysical methods of exploration for ores, petroleum, and other economic minerals. P/NP or letter grading.

136A. Applied Geophysics. (4) Lecture, three hours; laboratory, three hours; field trips. Preparation: knowledge of Fortran 90 or C++. Requisites: Mathematics 33A, Physics 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), 4AL, 4BL. Not open for credit to students with credit for course 135. Seismic reflection and refraction, Fourier analysis and deconvolution, vibroseis, synthetic seismograms, marine seismics, seismic interpretation, gravity and magnetic fields, inversion uniqueness and depth rules. P/NP or letter grading.

136B. Applied Geophysics. (4) Lecture, three hours; laboratory/field trips, six hours. Preparation: knowledge of Fortran 90 or C++. Requisite: course 136A. Principles and techniques of exploration for mineral deposits using natural and artificial electric and magnetic fields. Methods include self potential, resistivity, induced polarization, electromagnetics, magnetotellurics, magnetics. P/NP or letter grading.

136C. Field Geophysics. (6) Lecture, three hours; discussion, one hour; laboratory, two hours; fieldwork, 10 hours. Requisite: course 135 or 136A. Application of seismic, gravimetric, magnetic, electrical, and other geophysical methods to geologic and engineering problems. Practical aspects of geophysical exploration, including planning, data collection, data reduction, and interpretation. Fieldwork on unsolved problems (week-long field trip). P/NP or letter grading.

137. Petroleum Geology. (4) Lecture, three hours. Requisites: courses 61, 111. Geology applied to exploration for and production of natural gas and petroleum; techniques of surface and subsurface geology; problems of petroleum geology. P/NP or letter grading.

139. Engineering and Environmental Geology. (4) Lecture, three hours; discussion, one hour. Requisite: course 1 or 100. Recommended: course 111. Principles and practice of soil mechanics and foundation engineering in light of geologic conditions, recognition, prediction, and control or abatement of subsidence, landslides, earthquakes, and other geologic aspects of urban planning and subsurface disposal of liquids and solid wastes. P/NP or letter grading.

M140. Introduction to Fluid Dynamics. (4) (Same as Atmospheric and Oceanic Sciences M120.) Lecture, three hours; discussion, one hour. Corequisite: Physics 131. Fluid statics and thermodynamics. Kinematics. Conservation laws and equations of fluid motion. Circulation theorems and vorticity dynamics. Rotating frame. Irrotational flow. Letter grading.

C141. Basin Analysis. (4) Lecture, three hours; laboratory, three hours. Requisites: courses 103B, 111. Mechanisms of sedimentary basin development, flexural and thermal subsidence, isostasy, subsidence analysis, quantitative basin modeling, sediment provenance, tectonic settings. Concurrently scheduled with course C241. P/NP or letter grading.

150. Remote Sensing for Earth Sciences. (4) Lecture, three hours. Designed for juniors/seniors and graduate students. Remote sensing related to development of natural resources. Characteristics of electromagnetic spectrum and review of remote sensing devices. Applicability to land-use classification, soil survey, urban studies, vegetation classification; emphasis on geologic interpretation of imagery. P/NP or letter grading.

152. Physics of Earth. (4) Lecture, three hours; discussion, one hour. Requisites: Mathematics 31A, 31B, Physics 1A or 1AH. Crust to core tour of Earth and physics used to explore it. Isostasy, plate tectonics, mantle convection and geodynamo as discovered with tools of elasticity, fluid mechanics, and thermodynamics. P/NP or letter grading.

153. Oceans and Atmospheres. (4) Lecture, three hours; discussion, one hour. Requisites: Mathematics 31A, 31B, 32A, Physics 1A, 1B, and 1C (or 1AH, 1BH, and 1CH). Physics and chemistry of Earth's oceans and atmosphere; origin and evolution of planetary atmospheres; biogeochemical cycles, atmospheric radiation and climate, energetics and dynamics of oceanic and atmospheric circulation systems. P/NP or letter grading.

154. Solar Terrestrial Physics. (4) Lecture, three hours; discussion, one hour. Requisite or corequisite: Physics 110B. Particle and electromagnetic emissions from sun under quiet and under disturbed conditions. Solar wind. Magnetospheres and ionospheres of Earth and other planets. Geomagnetic phenomena and aurora. P/NP or letter grading.

155. Planetary Physics. (4) Lecture, three hours; discussion, one hour. Requisites: Mathematics 31A, 31B, 32A, Physics 1A, 1B, and 1C (or 1AH, 1BH, and 1CH). Formation of solar nebula; origin of planets and their satellites; comets, asteroids, and meteorites; celestial mechanics and dynamics; physics of planetary interiors, surfaces, and atmospheres. P/NP or letter grading.

C160. Field Seminar. (2 to 6) Seminar, three hours; discussion, one hour; fieldwork, five to 20 days. Requisite: course 61. Field-based teaching and discussion forum that varies in focus from general geology through structure and tectonics, sedimentology, igneous and metamorphic petrology, volcanology, or other subdisciplines as prescribed. May be repeated for credit. Concurrently scheduled with course C260. P/NP or letter grading.

C162. Application of Remote Sensing in Field. (3) Fieldwork, four hours; laboratory, one hour. Requisite: course 150. Application of remote-sensing techniques to field situations. Digital analysis and interpretation of near-infrared, thermal-infrared, and microwave data from satellites and aircraft. Field observation of study site in California desert for testing hypotheses during week between Winter and Spring Quarters. Concurrently scheduled with course C262. P/NP or letter grading.

184G. Field Geology for Graduate Students. (2 to 4) Lecture, two hours; four to five field trips. Requisite: course 121. Required of new graduate students in geology program. Advanced techniques in field geologic mapping, exposing students to igneous, metamorphic, and sedimentary terranes with varying amounts of tectonism. May be repeated for credit. S/U or letter grading.

188. Special Topics in Earth and Space Sciences. (4) Lecture/laboratory, to be arranged. Departmentally sponsored experimental or temporary courses, such as those taught by visiting faculty members. P/NP or letter grading.

193A-193B-193C. Undergraduate Journal Club Seminars: Earth and Space Sciences. (1-1-1) Seminar, one hour. Limited to undergraduate students. Study of current topics in Earth and space sciences, including participation in weekly department colloquium. May be repeated for credit. P/NP grading.

C194A-C194Z. Research Topics in Earth and Space Sciences. (1 each) Research group meeting, one to three hours. Designed for undergraduate Earth and space sciences students participating in research group. Advanced study and analysis of current topics in Earth and space sciences. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. Concurrently scheduled with courses C296A-C296Z. P/NP grading:

C194A. Rock Deformation, Structural Geology, Tectonics.

C194B. Volcanology and Geochemistry of Volcanic Rocks.

C194C. Seismology and Solid Earth Physics.

C194D. Thermal Evolution of Lithosphere.

C194E. Sedimentation and Tectonics.

C194F. Seismology.

C194G. Planetary and Orbital Dynamics.

C194I. Earthquakes.

C194J. Metamorphic Petrology.

C194K. Space Physics.

C194L. Magnetic Phenomena.

C194M. Planetary Physics.

C194N. Martian Surface and Atmosphere.

C194O. Tectonics and Stratigraphy.

C194P. Chemical Geodynamics.

C194Q. Paleobiology.

C194R. Planetary and Space Physics.

C194S. Precambrian Paleobiology.

C194T. Geomorphological Fluid Dynamics.

C194U. Geomorphology and Geological Physics.

C194V. Cosmochemistry.

C194X. Earthquakes and Earth Structure.

C194Y. Space Plasma Physics.

C194Z. Structural Geology, Tectonics.

198. Honors Research in Earth and Space Sciences. (4) Tutorial, two hours. Limited to seniors. Individual research designed to broaden and deepen students' knowledge of some phase of Earth and space sciences. Development and completion of honors thesis or comprehensive research project under direct supervision of faculty mentor. May be repeated for maximum of 16 units. Individual contract required. Letter grading.

199. Directed Research or Senior Project in Earth and Space Sciences. (2 to 4) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200A. Introduction to Geophysics and Space Physics I: Solid Earth and Planets. (4) Lecture, three hours. Requisites: Physics 105A, 110A, 112, 131. Geochemistry, cosmochemistry, and petrology; geotectonics; gravity field; seismology; heat transfer, thermal and mechanical evolution of mantle; core and geomagnetism; lunar and planetary interiors. S/U or letter grading.

200B. Introduction to Geophysics and Space Physics II: Oceans and Atmospheres. (4) Lecture, three hours. Requisites: Physics 105A, 110A, 112, 131. Evolution, chemistry, and heat balance of

oceans and atmospheres; molecular spectra, radiative transfer, and planetary observations; dynamics of oceans and atmospheres. S/U or letter grading.

200C. Introduction to Geophysics and Space Physics III: Plasmas—Aeronomy and Interplanetary Medium. (4) Lecture, three hours. Requisites: Physics 105A, 110B, 112, 131. Solar surface features, heating and expansion of corona, solar wind, plasma and magnetic fields, interaction of solar wind with Earth, magnetospheric phenomena. S/U or letter grading.

201. Classical Mechanics. (4) Lecture, three hours. Kinematics, variational principles and Lagrange equations, rotational dynamics. Hamilton equations of motion, linear and nonlinear perturbation theory, applications to solar system. S/U or letter grading.

202. Continuum Mechanics. (4) Lecture, three hours. Kinematics and dynamics of continuous media. Properties of stress, strain, and rate-of-strain tensors. Conservation laws. Elasticity and viscosity. Heat transfer, boundary layers, and dynamical similarity. S/U or letter grading.

203. Numerical Methods for Geosciences. (6) Lecture, four hours. Preparation: knowledge of programming language. Requisite: Mathematics 33B. Computational precision and algorithms, linear algebra, nonlinear equations, functional approximation, integration, ordinary and partial differential equations, spectral and finite element methods, parallel computing. Sample programming exercises from Earth and space sciences. Letter grading.

M204. Time-Series Analysis. (4) (Same as Statistics M221.) Lecture, three hours. Designed for graduate students. Exploration of methods for analyzing numerical time-series data. Basic topics in temporal and frequency analysis, followed by more recent topics. Examples in various fields including economics, signal processing, and atmospheric sciences. S/U or letter grading.

205. Inverse Theory and Data Interpretation. (4) Lecture, three hours. Requisites: Mathematics 115A, 170A, 170B, 171. Inverse modeling problem—determination of model parameters consistent with experimental data, considering effects of random errors and nonuniqueness. Emphasis on linear and quasi-linear problems; nonlinear problems also discussed. Tools used include matrix theory, quadratic forms, orthogonal rotations, statistics, principal axis transformation for rectangular matrices, Bachus/Gilbert resolving kernels, and Lagrange multipliers. Examples from broad range of physical sciences. S/U or letter grading.

C206. Physical Geochemistry. (4) Lecture, three hours. Requisite: course 51. Basic principles of physical chemistry for geologic applications. Thermodynamics and kinetics of reactions among minerals, natural waters, and magmas; construction and interpretation of phase diagrams; case studies of important geochemical and environmental issues. Concurrently scheduled with course C106. Additional independent research project and oral presentation required of graduate students. S/U or letter grading.

C207. Geochemistry. (4) Lecture, three hours; discussion, one hour. Designed for junior/senior and graduate physical sciences students. Origin and abundance of elements and their isotopes; distribution and chemistry of elements in Earth and its environment. Concurrently scheduled with course C107. Additional homework and class presentation required of graduate students. S/U or letter grading.

208. Geothermics. (4) Lecture, two and one-half hours; discussion, 30 minutes. Requisite: Mathematics 33A. Basic concepts of heat transfer applied to solutions of geological and geophysical problems, including continental heat flow, cooling of oceanic lithosphere, solidification of magmas, thermal and subsidence history of sedimentary basins, frictional heating on fault zones, mantle geotherms, temperature in descending slabs, thermal convection in geothermal regions. S/U or letter grading.

C209. Isotope Geochemistry. (4) Lecture, three hours; discussion, one hour. Designed for junior/senior and graduate physical and biological sciences

students. Theoretical aspects of isotope behavior: stable and radiogenic isotopes. Principles of geochronology. Use of isotopes as tracers in crust and mantle processes. Stable isotopes as indicators of environment and paleoclimate. Concurrently scheduled with course C109. Additional literature survey, that may result in class presentation, expected of graduate students. S/U or letter grading.

210. Geochemical Kinetics: Thermochronometry. (4) Lecture, three hours; discussion, one hour. Designed for graduate physical and biological sciences students. Theoretical basis and application of thermochronometry: derivation of diffusion equation and methods of solution, relationship between heat and mass diffusion and their simultaneous solution, Boltzmann/Matano analysis, multicomponent diffusion, closure theory; $^{40}\text{Ar}/^{39}\text{Ar}$ systematics and interpretive models, multidiffusion domain theory, petrological applications. Letter grading.

C213. Biological and Environmental Geochemistry. (4) Lecture, three hours. Requisites: Chemistry 14A and 14B (or 20A and 20B), Mathematics 3A, 3B, and 3C (or 31A and 31B). Recommended: at least one lower division Earth and space sciences course. Intended for graduate life and physical sciences students. Study of chemistry of Earth's surface environment and interplay between biology, human activity, and geology. Introduction to origin and composition of Earth, including atmosphere, crust, and hydrosphere. Examination of how these reservoirs are affected by biological cycles and feedbacks to biological evolution and diversity. Local and global-scale movements of biologically important elements like carbon, nitrogen, and phosphorus. Concurrently scheduled with course C113. S/U or letter grading.

M216. Evolutionary Biology. (4) (Same as Ecology and Evolutionary Biology M200A.) Lecture, two hours; discussion, two hours. Current concepts and topics in evolutionary biology, including microevolution, speciation and species concepts, analytical biogeography, adaptive radiation, mass extinction, community evolution, molecular evolution, and development of evolutionary thought. S/U or letter grading.

M217. Molecular Evolution. (4) (Same as Ecology and Evolutionary Biology M231.) Lecture, two hours; discussion, two hours. Series of advanced topics in molecular evolution, with special emphasis on molecular phylogenetics. Topics may include nature of genome, neutral evolution, molecular clocks, concerted evolution, molecular systematics, statistical tests, and phylogenetic algorithms. Themes may vary from year to year. May be repeated for credit. S/U or letter grading.

219. Planetary and Orbital Dynamics. (4) Lecture, four hours. Planetary rotations, satellite orbits, and tidal dissipation; planetary orbital system; resonance effects and chaos; spin-orbit and orbit-orbit coupling; planetary rings. S/U or letter grading.

220. Principles of Paleobiology. (4) Lecture/discussion, three hours. Limited to graduate science students. Open to qualified undergraduate biological and physical sciences students with consent of instructor. Current and classic problems in paleobiology, with emphasis on interdisciplinary problems involving aspects of biology, geology, organic geochemistry, and cosmology. Content varies from year to year. May be repeated for credit. S/U or letter grading.

221. Field Geology. (4) Lecture, one hour; discussion, one hour; fieldwork, 10 days. Requisite: course 121 or 184G. Planning, execution, and presentation of geologic mapping projects at professional level. Resolution of problems in Southern California geology from synthesis of new and published research. Field area varies from year to year. May be repeated for credit. S/U or letter grading.

222. Introduction to Seismology. (4) Lecture, three hours. Types of seismic waves; travel-time seismology; epicenter location; amplitude variations; seismograph theory; explosion seismology; seismicity; focal conditions; surface wave analysis; microseisms and tsunamis. S/U or letter grading.

M224A. Elastodynamics. (4) (Same as Mechanical and Aerospace Engineering M257A.) Lecture, four hours. Requisites: Mechanical and Aerospace Engi-

neering M256A, M256B. Equations of linear elasticity, Cauchy equation of motion, constitutive relations, boundary and initial conditions, principle of energy. Sources and waves in unbounded isotropic, anisotropic, and dissipative solids. Half-space problems. Guided waves in layered media. Applications to dynamic fracture, nondestructive evaluation (NDE), and mechanics of earthquakes. Letter grading.

225A. Physics and Chemistry of Planetary Interiors I. (4) Lecture, four hours. Chemical compositions of Earth and planets; high-pressure and temperature effects, phase transitions, and equations of state; variations of density and temperature with depth; thermal and compositional evolution. S/U or letter grading.

225B. Physics and Chemistry of Planetary Interiors II. (4) Lecture, four hours. Lateral inhomogeneities in Earth: seismic velocities, petrology, geothermal and gravitational variations; evidences of motion; remanent magnetism, seismic motions; postglacial rebound; plate tectonics; rheology of mantle; thermal convection. S/U or letter grading.

C226. Advanced Igneous Petrology. (4) Lecture, three hours; laboratory, three hours; field trips. Requisite: course 103A. Designed for graduate students. Understanding genesis of igneous rocks based on geochemical, tectonophysical, and other geological evidence and principles. Concurrently scheduled with course C126. Graduate students required to read more recommended references, make class presentations on particular topics resulting from that reading, and lead seminar-type discussions on their selected topics. S/U or letter grading.

228. Introduction to Planetary Dynamos. (4) Lecture, three hours; laboratory/discussion, 90 minutes. Requisites: courses 200A, 200B, 200C. Designed for graduate students. Basic principles of planetary dynamo generation. Planetary core dynamics and core convection; mean field dynamo theory; kinematic dynamo theory; survey of modeling techniques and results. S/U or letter grading.

229. Planetary Atmospheres. (4) Lecture, three hours. Requisite: course 200B. Planetary atmospheric structure, dynamics, and composition. Topics include spacecraft observations; origin and evolution of atmospheres; photochemistry, radiation mechanisms, and transport; atmospheric waves and general circulation; wave-mean flow and turbulence; remote sensing and inversion techniques. S/U or letter grading.

230. X-Ray Crystallography. (4) Lecture, three hours; laboratory, three hours. Requisite: course 51. Point, translation, and space group symmetry, diffraction of X-ray, reciprocal lattice theory, single crystal X-ray methods, diffraction symmetry and elementary crystal structure analysis. S/U or letter grading.

231. Crystal Chemistry and Structure of Minerals. (4) Lecture, three hours; laboratory, three hours. Requisite: course 51. Bonding, interatomic configurations, polymorphic transformations, isotypism, thermal and positional disorder; survey of structures of common minerals, and relation of physical and chemical properties to crystal structure. S/U or letter grading.

C232. Hydrogeology. (4) Lecture, three hours; laboratory, one hour. Requisite: Mathematics 32A. Quantitative basis for studying fluid flows in geologic processes. Groundwater problems and pore-fluid pressure evolution. Concurrently scheduled with course C132. S/U or letter grading.

233. Mineral Physics and Equation of State. (4) Lecture, three hours. Interrelationship of physical properties of rock-forming minerals: optical reflectivity, refraction index, sound velocity, elastic constants, specific heat, and thermal expansivity. Determination of pressure, volume, and temperature relationships and planet-forming compounds. Variation of elastic constants with temperature and pressure. Application of shock-wave experiments to equations of state. S/U or letter grading.

234. Petrologic Phase Equilibria. (4) Lecture, three hours; discussion, three hours. Requisites: course 51, Chemistry 110B. Principles governing homogeneous and heterogeneous equilibria, with selected applications to mineral stability relations in igneous and met-

amorphous rocks (fractional crystallization, partial melting, hydrothermal solutions, element partitioning in coexisting phases). S/U or letter grading.

235A-235B-235C. Current Research in Geochemistry. (1-1-1) Discussion, one hour. Limited to graduate Earth and space sciences students. Seminars presented by staff, outside speakers, and graduate students stressing current research in Earth and planetary chemistry. May be repeated for credit. S/U grading.

238. Metamorphic Petrology. (4) Lecture, three hours; laboratory, six hours. Preparation: one introductory petrology and petrography course. Interpretation of metamorphic rocks in light of observation, theory, and experiment. Geological relations, petrographic evidence, metamorphic zoning, thermodynamics of phase equilibria, projections, chemographic relationships, use of piezobirefringent haloes, Rayleigh depletion model, isotopic fractionation, environmental factors of metamorphism. Laboratory study of representative metamorphic rocks and suites of rocks selected to illustrate topics discussed in lectures. S/U or letter grading.

240. Space Plasma Physics. (4) Lecture, three hours. Requisite: course 200C or Physics 210A. Physics of plasmas in space, including treatments based on magnetohydrodynamics and kinetic theory. Applications to solar or planetary winds, steady-state magnetospheres, magnetospheric convection, sub-storm processes, magnetic merging, field-aligned currents and magnetosphere/ionosphere coupling, ring current dynamics, and wave particle instabilities. S/U or letter grading.

C241. Basin Analysis. (4) Lecture, three hours; laboratory, three hours. Requisites: courses 103B, 111. Mechanisms of sedimentary basin development, flexural and thermal subsidence, isostasy, subsidence analysis, quantitative basin modeling, sediment provenance, tectonic settings. Concurrently scheduled with course C141. S/U or letter grading.

242. Sandstone Petrology. (4) Lecture, two hours; laboratory, four hours. Requisite or corequisite: course C141. Petrographic study of sandstones, with emphasis on provenance, petrofacies, and paleotectonic reconstructions. S/U or letter grading.

243. Advanced Physical Sedimentology. (4) Lecture, three hours; field trips. Requisites: courses 103B, 111. Fluid dynamics, sediment transport, and sedimentology of nonmarine and marine depositional systems, including fluvial, alluvial fan, lacustrine, eolian, and shallow-marine to deep-marine clastic and carbonate environments. Letter grading.

244. Tectonics of Sedimentary Basins. (4) Lecture, two hours; discussion, two hours; field trips. Requisites: courses 103B, 119. Recommended: course C141. Plate-tectonic settings of sedimentary basins. Basin analysis, stratigraphy, paleoenvironments, sedimentology, and related subjects in context of plate-tectonic controls on basin evolution. S/U or letter grading.

245A-245B-245C. Current Research in Tectonics. (1-1-1) Seminar, one hour. Limited to graduate Earth and space sciences students. Seminars presented by staff, outside speakers, and graduate students on current research in tectonics and/or sedimentology. May be repeated for credit. S/U grading.

246. Stress in Lithosphere. (4) Lecture, three hours. Requisite: course 202 or Civil Engineering 108. Overcoming, hydrofracture, fault plane solutions, seismic stress drops; effects of erosion, cooling, Earth ellipticity, topography, and density anomalies. State of stress in plate boundaries and interiors. Application of finite element and analytic methods to stress determination. S/U or letter grading.

248. Advanced Structural Geology. (4) Lecture, three hours; discussion, two hours. Requisite: course 111. Principles governing fracture, folding, and flow of rocks; solutions of structural problems at various scales; regional tectonic problems. S/U or letter grading.

250. Mars. (4) Lecture, three hours. Mars geology, geophysics, geochemistry. Cratering history, surface/atmosphere interaction, volatiles, polar caps, atmosphere, climate. S/U or letter grading.

251. Seminar: Mineralogy. (4) Seminar, three hours. Examination of groups of rock-forming minerals (e.g., feldspars), integrating such aspects as crystal structure, crystal chemistry, phase equilibria, and petrogenesis. S/U or letter grading.

252. Seminar: Geochemistry. (4) Seminar, two hours; discussion, two hours. Phase equilibria under crustal conditions, chemistry of ocean waters, recent and ancient sediments, structure and chemistry of upper mantle, geochronology, cosmochronology, and cosmochemistry. S/U or letter grading.

253. Seminar: Petrology. (4) Seminar, three hours. Problems of igneous or metamorphic petrology: methods of evaluating physical conditions of metamorphism; diffusion in mineralogical systems; origin of ultramafic rocks and problems of mantle; element fractionation among coexisting phases; other current subjects in field. S/U or letter grading.

254. Seminar: Sedimentology. (4) Seminar, three hours. Processes of sediment transport and deposition; deep sea sediments; deltas and estuaries; petrology of carbonates, sandstones, and lites; stratigraphy; paleoenvironmental studies. S/U or letter grading.

255. Seminar: Structural Geology and Tectonics. (4) Seminar, three hours. Flow and fracture in Earth's crust from microscopic to continental scale and in experiments. Examples may include metamorphic terranes, glaciers, plutons, volcanoes, and consolidated or unconsolidated sediments. Modern concepts of oceanic basins; processes leading to segregation of continental-type rocks. S/U or letter grading.

257. Seminar: Paleontology. (4) Seminar/discussion, three hours. Advanced topics in paleobiology, biostratigraphy, paleoecology, and paleobiogeography, with emphasis on relations to other disciplines. S/U or letter grading.

259. Seminar: Paleotectonics. (4) Seminar, two hours; discussion, two hours. Requisite: course 244. Basin evolution and paleogeography, with emphasis on Phanerozoic of Western U.S. S/U or letter grading.

C260. Field Seminar. (2 to 6) Seminar, three hours; discussion, one hour; fieldwork, five to 20 days. Requisite: course 61. Field-based teaching and discussion forum that varies in focus from general geology through structure and tectonics, sedimentology, igneous and metamorphic petrology, volcanology, or other subdisciplines as prescribed. May be repeated for credit. Concurrently scheduled with course C160. S/U or letter grading.

261. Topics in Magnetospheric Plasma Physics. (4) Lecture, four hours. Lectures, discussions, and exercises on specific advanced topics in magnetospheric plasma physics. Previous courses examined magnetic storms, magnetospheric substorms, ultralow frequency waves, and adiabatic particle motion in Earth's radiation belts. S/U or letter grading.

C262. Application of Remote Sensing in Field. (3) Fieldwork, four hours; laboratory, one hour. Requisite: course 150. Application of remote-sensing techniques to field situations. Digital analysis and interpretation of near-infrared, thermal-infrared, and microwave data from satellites and aircraft. Field observation of study site in California desert for testing hypotheses during week between Winter and Spring Quarters. Concurrently scheduled with course C162. S/U or letter grading.

265. Instrumentation, Data Processing, and Data Analysis in Space Physics. (4) Lecture, three hours. Principles, testing, and operations of magnetometers and other instruments. Data processing, display, and archiving. Time-series analysis techniques, including filtering. Fourier series, eigenanalysis, and power spectra. S/U or letter grading.

M270A-M270B-M270C. Seminars: Climate Dynamics. (2 to 4 each) (Same as Atmospheric and Oceanic Sciences M272A-M272B-M272C and Geography M270A-M270B-M270C.) Seminar, two hours. Archaeological, geochemical, micropaleontological, and strati-

graphic evidence for climate change throughout geological past. Rheology and dynamics of climatic subsystems: atmosphere and oceans, ice sheets and marine ice, lithosphere and mantle. Climate of other planets. Modeling, simulation, and prediction of modern climate on monthly, seasonal, and interannual time scale. May be repeated for credit. S/U or letter grading.

275. Geocomplexity and Earthquake Predictions. (4) Lecture, two hours; discussion, two hours. Understanding and prediction of critical phenomena (defined as abrupt overall changes) in Earth's crust, mathematical modeling and analysis of data from seismicity, remote sensing, and hydrology. Extensions to critical phenomena in engineering and socioeconomic systems. Letter grading.

277. Concepts and Tools for Variability in Natural Sciences. (4) Lecture, three hours. Introduction to concepts and methods of nonlinearity, chaos theory, fractals, intermittency, self-organization, cooperativity, criticality, spatio-temporal chaos, turbulence, disorder, and fluctuations. Applications to tectonics, earthquakes, geomorphology, meteorology, evolution, biology. S/U or letter grading.

282. Seminar: Geophysics. (4) Seminar, two hours; discussion, two hours. Seismology, geophysical prospecting, electromagnetic prospecting. Selected topics in Earth physics. Content varies from year to year. May be repeated for credit. S/U or letter grading.

M285. Origin and Evolution of Solar System. (4) (Same as Astronomy M285.) Lecture, four hours. Dynamical problems of solar system; chemical evidences from geochemistry, meteorites, and solar atmosphere; nucleosynthesis; solar origin, evolution, and termination; solar nebula, hydromagnetic processes, formation of planets and satellite systems. Content varies from year to year. May be repeated for credit. S/U grading.

286A-286B-286C. Seminars: Planetology. (2-2-2) Seminar, two hours. Problems of current interest concerning moon, planets, and meteorites. May be repeated for credit. S/U grading.

287A-287B-287C. Seminars: Seismology and Earth's Interior. (2-2-2) Seminar, two hours. Problems of current interest in seismology and Earth's interior. May be repeated for credit. S/U grading.

M288A-M288B-M288C. Seminars: Space Physics. (2-2-2) (Same as Atmospheric and Oceanic Sciences M275A-M275B-M275C.) Seminar, one hour. Problems of current interest concerning particles and fields in space. May be repeated for credit. S/U grading.

289. Seminar: Fluid Dynamics. (2) Seminar, one to two hours. Problems of current interest in fluid dynamics, with emphasis on geophysical applications. May be repeated for credit. S/U grading.

290. Seminar: Time-Series Analysis. (2) Seminar, three hours. Discussion of recent research in spectral estimation, filtering, and signal detection applied to geophysical problems. S/U grading.

293A-293B-293C. Space Physics Journal Club. (1-1-1) Seminar, one hour. Limited to graduate space physics students in Earth and Space Sciences, Atmospheric and Ocean Sciences, and Physics and Astronomy Departments. Review of current space physics literature. May be repeated for credit. S/U grading.

295A-295B-295C. Current Research in Earth and Space Sciences. (1-1-1) Lecture, one hour. Limited to graduate Earth and space sciences students. Seminars presented by outside speakers, staff, and/or graduate students describing current research. Written reports required. May be repeated for credit. S/U grading.

C296A-C296Z. Research Topics in Earth and Space Sciences. (1 each) Research group meeting, one to three hours. Designed for graduate Earth and space sciences students participating in research group. Advanced study and analysis of current topics in Earth and space sciences. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. Concurrently scheduled with courses C194A-C194Z. S/U grading:

C296A. Rock Deformation, Structural Geology, Tectonics.

C296B. Volcanology and Geochemistry of Volcanic Rocks.

C296C. Seismology and Solid Earth Physics.

C296D. Thermal Evolution of Lithosphere.

C296E. Sedimentation and Tectonics.

C296F. Seismology.

C296G. Planetary and Orbital Dynamics.

C296H. Space Plasma Physics.

C296I. Earthquakes.

C296J. Metamorphic Petrology.

C296K. Space Physics.

C296L. Magnetic Phenomena.

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C296O. Tectonics and Stratigraphy.

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C296Q. Paleobiology.

C296R. Planetary and Space Physics.

C296S. Precambrian Paleobiology.

C296T. Geophysical Fluid Dynamics.

C296U. Geomorphology and Geological Physics.

C296V. Cosmochemistry.

C296X. Earthquakes and Earth Structure.

C296Z. Structural Geology, Tectonics.

297. Advanced Techniques in Geological Research. (2 to 4) Lecture, two to four hours. S/U grading.

298. Advanced Topics in Earth and Space Sciences. (2 to 4) Lecture, two to four hours. S/U or letter grading.

M370A. Integrated Science Instruction Methods. (4) (Same as Chemistry M370A and Physics M370A.) Lecture, two hours; discussion, one hour; laboratory, one hour. Preparation: one introductory lower division year (including laboratory) each of chemistry, life sciences, and physics and at least two Earth science courses, preferably one with field experience. Classroom management, lesson design, assessment, history of science education. S/U or letter grading.

M370B. Integrated Science Instruction Methods. (4) (Same as Chemistry M370B and Physics M370B.) Lecture, two hours; discussion, one hour; laboratory, one hour. Prerequisite: course M370A or Chemistry M370A or Physics M370A. Application of learning theory to science instruction and classroom management, including use of technology, collaborative learning, laboratory safety, ethical issues, field experiences, and professional development. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Teaching Earth and Space Sciences. (2) Seminar, one hour; discussion, two hours. Classroom practice in teaching, with individual and group instruction on related educational methods, materials, and evaluation. Special emphasis on integration of technology in classroom. S/U grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. Directed Individual Study and/or Research. (2 to 12) Tutorial, to be arranged. May be repeated. S/U or letter grading.

597. Preparation for M.S. Comprehensive Examination or Ph.D. Qualifying Examinations. (2 to 8) Tutorial, to be arranged. S/U grading.

598. M.S. Research and Thesis Preparation. (2 to 12) Tutorial, to be arranged. May be repeated. S/U grading.

599. Ph.D. Research and Dissertation Preparation. (2 to 12) Tutorial, to be arranged. S/U grading.

EAST ASIAN STUDIES

*Interdepartmental Program
College of Letters and Science*

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C. Cindy Fan, Ph.D., *Chair*

Faculty Administrative Committee

William M. Bodiford, Ph.D. (*Asian Languages and Cultures*)
Cameron D. Campbell, Ph.D. (*Sociology*)
Jack W. Chen, Ph.D. (*Asian Languages and Cultures*)
Torquill Duthie, Ph.D. (*Asian Languages and Cultures*)
C. Cindy Fan, Ph.D. (*Geography*)
Andrea S. Goldman, Ph.D. (*History*)
Natasha L. Heller, Ph.D. (*Asian Languages and Cultures*)
Burglind Jungmann, Ph.D. (*Art History*)
Hui-Shu Lee, Ph.D. (*Art History*)
Namhee Lee, Ph.D. (*Asian Languages and Cultures*)
William Marotti, Ph.D. (*History*)
Keyyoung Park, Ph.D. (*Anthropology, Asian American Studies*)
Shu-mei Shih, Ph.D. (*Asian Languages and Cultures, Comparative Literature*)
Richard E. Strassberg, Ph.D. (*Asian Languages and Cultures*)
Mariko Tamanoi, Ph.D. (*Anthropology*)
James Tong, Ph.D. (*Political Science*)

Scope and Objectives

East Asia is one of the most important and dynamic regions of the world today. With its ancient cultures, growing economies, technological progress, and increasing role in global affairs, the East Asian Studies major, an interdepartmental and interdisciplinary area studies program, is designed to provide students with comprehensive understanding of East Asia from historical and contemporary vantage points. Courses on China, Japan, and Korea allow majors to study regional phenomena from various national perspectives, while comparative or pan-East Asian coursework provides an in-depth knowledge of the region as a whole. Combining both social sciences and humanities approaches with language study, it is a highly flexible major that enables students to construct programs suited to a broad range of individual needs and career interests.

While students pursuing the East Asian Studies M.A. are normally expected to select one country (China, Japan, or Korea) as a focus of their work, the strength of the program is the access it provides to an understanding of regional and global ties that characterize East Asia today.

Undergraduate Study

East Asian Studies B.A.

Preparation for the Major

Required: (1) Two history and culture courses selected from Asian 61, 70A, 70B, 70C, General Education Clusters 25A, 25B, 25CW. The following courses also satisfy this requirement, but no more than one from each country may be selected: China—Chinese 50, 60, History 11A, 11B; Japan—Japanese 50, 70, History 9C; Korea—Korean 50, 60; (2) two social sciences courses, each from a different department, selected from Anthropology 9, Geography 3, 4, 6, Political Science 10, 20, 50, Sociology 1; (3) completion of the sixth term (intermediate level) of Chinese, Japanese, or Korean or demonstration by placement examination of proficiency through level 6.

To enter the major, students must have completed all nonlanguage preparation courses and the foreign language courses through at least level 3 (elementary level). Any remaining language courses may be completed while students are in major standing. Each preparation for the major course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. After satisfying the preparation requirements, students may declare the major in consultation with the academic counselor.

Transfer Students

Transfer applicants to the East Asian Studies major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: two years of Chinese, Japanese, or Korean, two history and culture courses, and two lower division social sciences courses selected from two of the following fields: sociocultural anthropology, cultural or economic geography, comparative or world politics, or introductory sociology.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Students must complete the following courses:

1. East Asian Studies 101
2. Two courses on China in two separate departments selected from Anthropology 175Q, 175Y, Art History C115B, C115D through C115G, Asian 152, Asian American Studies 171A, Chinese 101A, 101B, 110A, 110B, 110C, 120, 130A, 130B, C138, 139, 140A through 140D, C150A, 150B, 151, 152, 154, 155, C156, C160, 165, 174, C175, 176, 180, 185, 186, 187, 191A, Comparative Literature M171, Ethnomusicology C156A, 156B, 157, 158A, 158B, 158C, C159, 161D (must be taken twice), Geography 186, History 169A, 169B, 170A, 170B, 170D, Political Science 135, 159A, 159B, Sociology 181, Women's Studies M170C

3. Two courses on Japan in two separate departments selected from Anthropology 175S, Art History 114C, 114G, C115C, Asian American Studies 171B, Ethnomusicology 160, 161G (must be taken twice), Geography 139, History 171, 172A, 172B, 172C, 173A, M173B, 173C, Japanese 101A, 101B, 110, C112, 130A, 130B, 130C, 140A, 140B, 140C, C149, C150, 151, 154, 155, M156, 157, C160, 161, 165, 170, C171, 175, C177, C180, C182, C186, 191A, 191B, 191C, Linguistics M116, M176A, M176B, Political Science 136, 160, Theater 102A, Women's Studies M155, M173B
4. Two courses on Korea in two separate departments selected from Anthropology 175V, Art History 114E, C140A through C140D, Asian American Studies 171C, Ethnomusicology 161J (must be taken twice), Geography 158, Korean 101A, 101B, 101C, 102A, 102B, 102C, C105A, C105B, C105C, 130A, 130B, 150, 151, 155, C160, 165, 172, 175, 176, 177, 178, 180A, 180B, 180C, 181, 183, 187, 191A, 191B, Linguistics M177
5. Five additional upper division courses in at least two separate departments on any East Asian country (China, Japan, Korea) and/or from the following list of transnational East Asian courses: Anthropology 175T, Asian 120, 151, 162, 163, 191A, Communication Studies 183, 184, Ethnomusicology C150, Film and Television 188G (may be applied only as one 4-unit course), Linguistics M178, Philosophy 179, Sociology 179, World Arts and Cultures 110B

East Asian Studies 191A and 191B may be applied toward specific upper division requirements for the major, depending on course topic.

One upper division course not on the above list from Asian American studies, South Asian studies, or Southeast Asian studies may be applied toward item 5.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degree

The East Asian Studies Program offers the Master of Arts (M.A.) degree in East Asian Studies.

East Asian Studies

Upper Division Courses

101. Introduction to East Asian Studies. (4) Lecture, three hours. Interdisciplinary course designed to investigate East Asia as regional unit from range of approaches and methodologies. Overview of historical and cultural constructs, flow of ideas and materials, society and state, geopolitics and international relations, and current challenges in and related to East Asia. P/NP or letter grading.

191A-191B. Variable Topics Research Seminars: East Asian Studies. (4-4) Seminar, three hours. Research seminars on selected topics in East Asian studies. Reading, discussion, and development of culminating project. May be repeated for credit with topic change. P/NP or letter grading.

ECOLOGY AND EVOLUTIONARY BIOLOGY

College of Letters and Science

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Victoria L. Sork, Ph.D., *Chair*

Professors

Priyanga A. Amarasekare, Ph.D.
Daniel T. Blumstein, Ph.D.
Clifford F. Brunk, Ph.D.
Donald G. Buth, Ph.D.
Peggy M. Fong, Ph.D.
Arthur C. Gibson, Ph.D.
Malcolm S. Gordon, Ph.D.
Patricia A. Gowaty, Ph.D.
Gregory F. Grether, Ph.D.
Stephen P. Hubbell, Ph.D.
David K. Jacobs, Ph.D.
Glen M. MacDonald, Ph.D.
Peter M. Narins, Ph.D.
Peter N. Nonacs, Ph.D.
Philip W. Rundel, Ph.D.
Barnett A. Schlinger, Ph.D.
Thomas B. Smith, Ph.D.
Victoria L. Sork, Ph.D.
Charles E. Taylor, Ph.D.
Blair Van Valkenburgh, Ph.D.
Robert K. Wayne, Ph.D.
Cheryl Ann Zimmer, Ph.D.
Richard K. Zimmer, Ph.D.

Professors Emeriti

AA Barber, Ph.D.
Joseph Cascarano, Ph.D.
Martin L. Cody, Ph.D.
Nicholas E. Collias, Ph.D.
Eric B. Edney, Ph.D.
Franz Engelmann, Ph.D.
Elma González, Ph.D.
William M. Hamner, Ph.D.
Henry A. Hespenheide, Ph.D.
J. Lee Kavanau, Ph.D.
Owen R. Lunt, Ph.D.
Austin J. MacInnis, Ph.D.
Kenneth A. Nagy, Ph.D.

Park S. Nobel, Ph.D.
Richard W. Siegel, Ph.D.
Henry J. Thompson, Ph.D.
Richard R. Vance, Ph.D.
Peter P. Vaughn, Ph.D.
Eduardo Zeiger, Ph.D.

Associate Professors

Paul H. Barber, Ph.D.
Lawren Sack, Ph.D.

Assistant Professors

Michael E. Alfaro, Ph.D.
James O. Lloyd-Smith, Ph.D. (*De Logi Professor of Biological Sciences*)
John P. Novembre, Ph.D.
Rebecca F. Shipe, Ph.D.

Lecturer

Patricia M. Halpin, Ph.D.

Adjunct Professor

Jon E. Keeley, Ph.D.

Adjunct Associate Professor

Xiaoming Wang, Ph.D.

Adjunct Assistant Professors

Ines Horovitz, Ph.D.
Seth D. Riley, Ph.D.
Raymond M. Sauvajot, Ph.D.
Ronald R. Swaisgood, Ph.D.

Scope and Objectives

Organismic biology touches every aspect of modern life, and understanding how living organisms are adapted to their environments is the major challenge of the discipline. To meet this challenge, the Department of Ecology and Evolutionary Biology offers undergraduate and graduate instruction at all levels of biology—from regulatory and physiological processes within organisms through the natural ecology and behavior of living organisms and to the population and community dynamics of multiple species. All of these subject areas address practical problems facing the world today, and all influence human decisions on matters ranging from conservation of the environment to advancement of medical science.

The Bachelor of Science degrees combine essential background studies in mathematics, chemistry, and physics with a general introduction to all of the biological subjects, as well as advanced in-depth exposure to some of them. The Master of Arts and Ph.D. degrees provide opportunities for advanced, concentrated study. The Master of Arts degree requires, in addition to specified coursework, completion of either a comprehensive examination or the performance of original research culminating in a thesis. The Ph.D. degree requires independent and innovative research that ultimately results in a dissertation.

Undergraduate Study

Students may earn a Bachelor of Science degree in one of three different majors within the department: Biology (general biology); Ecology, Behavior, and Evolution; and Marine Biology. The majors build on similar lower division introductory courses and differ primarily in the upper division requirements. The Biology major is designed for students who desire exposure to a wide range of biological subjects. The re-

maining two majors—Ecology, Behavior, and Evolution and Marine Biology—provide more specialized instruction and strong preparation for employment or subsequent graduate study in the respective disciplines.

Two of the majors offered in the department are designated capstone majors: Ecology, Behavior, and Evolution and Marine Biology. In both programs students apply theory and technique learned through four years of classroom and laboratory experience to their own independent projects. The main purpose of the capstone is to provide a unique field experience that involves designing and executing a research project. Students are aided in the scientific process of learning about a new ecosystem, developing relevant questions, designing conceptually based projects, troubleshooting and completing the work, and writing a publication-ready manuscript. They are also expected to exhibit strong teamwork, problem-solving, and communication skills.

Biology B.S.

The Biology major is designed for students with a broad interest in biology who desire to pursue careers in a wide range of biological and related fields. It provides excellent background preparation for postgraduate training in medicine and other health sciences, in tracks leading to academic and public service careers in biology, in biological industries, and even in nonbiological careers such as business, agriculture, and law. Emphasis is on breadth of training to expose students to all levels of modern biology.

Preparation for the Major

Life Sciences Core Curriculum

Required: Life Sciences 1, 2, 3, 4; Chemistry and Biochemistry 14A, 14B, 14BL, 14C, 14CL, and 14D, or 20A, 20B, 20L, 30A, 30AL, 30B, and 30BL; Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A; Physics 1A, 1B, 1C, 4AL, and 4BL, or 6A, 6B, and 6C; Statistics 13.

Each core curriculum course must be passed with a grade of C– or better, and all courses must be completed with an overall grade-point average of 2.0 or better. Students receiving a grade below C– in two core curriculum courses, either in separate courses or repetitions of the same course, are subject to dismissal from the major.

Transfer Students

Transfer applicants to the Biology major with 90 or more units must complete the following introductory courses prior to admission to UCLA: one year of general biology with laboratory for majors, preferably equivalent to Life Sciences 1 and 2, one year of calculus, one year of general chemistry with laboratory for majors, and one semester of organic chemistry with laboratory. A second semester of organic chemistry or one year of calculus-based physics is strongly recommended but not required for admission.

Refer to the *UCLA Transfer Admission Guide* at <http://www.admissions.ucla.edu/prospect/adm>

_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Students must complete the following courses:

1. Chemistry and Biochemistry 153A
2. At least 8 units (two courses) from Ecology and Evolutionary Biology 100, 109, 116, 120, 121
3. At least 8 laboratory units (two courses) from Ecology and Evolutionary Biology 101, 103, 105, 109/109L (count as one course), 110, 111, 112, 113A, 114A, 115, 117, 128, 134A, 136, 152/162L (count as one course), 162/162L (count as one course), 170, 181 (4 units from the Field Biology Quarter or Marine Biology Quarter may be applied, and one course from Molecular, Cell, and Developmental Biology C150/150L or Physiological Science 166 may be included)
4. At least 8 units (two courses) from Ecology and Evolutionary Biology 100, 101, 103, 105, 107, 109, 110, 111, 112, 113A, 114A, 115, 116, 117, C119, 120, 121, 122, 126, M127, 128, 129, 130, 133, 134A, 135, 136, 137, M139, 142, M145, 146, 151A, 152, 154, 155, 160, 162, 168, 170, M171, 175, 176 (counts as one-half course), 180A (counts as one-half course), 180B, 187, 198A and 198B, 199 (4 units), Molecular, Cell, and Developmental Biology 138, 165A (8 units from the Field Biology Quarter or Marine Biology Quarter may be included, and any departmental course not applied under item 2 or 3 above may be applied in this category)
5. At least 12 units (three courses) from the following: Anthropology 120 and/or one course from 124A, 124P, 127P, or 128A, Atmospheric and Oceanic Sciences M105 (or Ecology and Evolutionary Biology M139) or one course from 102, 103, 104, or 130, Biomathematics 110 and/or Biostatistics 100B, chemistry (except Chemistry and Biochemistry 193A through 199; Chemistry and Biochemistry 153L is strongly recommended), Earth and Space Sciences 116, Ecology and Evolutionary Biology 187, 188, 198A and 198B, 199 (4 units), Environment 184, Geography 112 and/or one course from 108 or 111, Human Genetics C144 or one course from Life Sciences 100HA, 100HB, or 100HC, mathematics (except Mathematics 105A, 105B, 106, 191 through 199), microbiology, immunology, and molecular genetics (except Microbiology, Immunology, and Molecular Genetics 193A through 199C), molecular, cell, and developmental biology (except Molecular, Cell, and Developmental Biology 190A through 199D), Neuroscience M101A, M101B, M101C, 102, M130, M148, physics (except Physics 190 through 199), physiological science (except Physiological Science 191 through

199), Psychology 115 (any remaining units from the Field Biology Quarter or Marine Biology Quarter not applied in item 3 or 4 may be applied and any course not applied under item 2, 3, or 4 above may be included in this category).

A maximum of 8 units of the Ecology and Evolutionary Biology 198 series or 4 units of Ecology and Evolutionary Biology 199 may be applied toward the major. Credit for 199 courses from other departments may not be applied.

Each course applied toward requirements for preparation for the major and the major must be taken for a letter grade. Biology majors must earn a C– or better in each course taken as preparation for the major, and at least a 2.0 (C) overall average in all courses applied toward the major.

Ecology, Behavior, and Evolution B.S.

Capstone Major

The Ecology, Behavior, and Evolution major is appropriate for students preparing for graduate study in ecology, behavior, and evolution or for employment in areas such as environmental biology, animal behavior, conservation, teaching, museum work, and governmental positions dealing with environmental issues of wide importance and impact. A strong field component involving study in terrestrial and marine locales such as coastal, desert, and mountain environments in California and the Southwest and in the Neotropics is required.

Preparation for the Major

Life Sciences Core Curriculum

Required: Life Sciences 1, 2, 3, 4; Chemistry and Biochemistry 14A, 14B, 14BL, 14C, 14CL, and 14D, or 20A, 20B, 20L, 30A, 30AL, 30B, and 30BL; Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A (31A, 31B, and 32A must be taken to satisfy the calculus requirement); Physics 1A, 1B, 1C, 4AL, and 4BL, or 6A, 6B, and 6C; Statistics 13.

Each core curriculum course must be passed with a grade of C– or better, and all courses must be completed with an overall grade-point average of 2.0 or better. Students receiving a grade below C– in two core curriculum courses, either in separate courses or repetitions of the same course, are subject to dismissal from the major.

Transfer Students

Transfer applicants to the Ecology, Behavior, and Evolution major with 90 or more units must complete the following introductory courses prior to admission to UCLA: one year of general biology with laboratory for majors, preferably equivalent to Life Sciences 1 and 2, one year of calculus, one year of general chemistry with laboratory for majors, and one semester of organic chemistry with laboratory. A second semester of organic chemistry or one year of calculus-based physics is strongly recommended but not required for admission.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Students must complete the following courses:

1. At least 4 morphology and systematics units (one course) from Ecology and Evolutionary Biology 103, 105, 110, or 130
2. At least 4 physiology units (one course) from Ecology and Evolutionary Biology 137, 146, 162/162L (must take both), 170, or Physiological Science 166
3. At least 12 ecology, behavior, and evolution units (three courses) from Anthropology 128A, Ecology and Evolutionary Biology 100, 116, C119, 120, 121, 122, 126, 128, 129, 130, 133, 135, 136, 137, 142, 151A, 152, 154, 155, 162, M171, 175
4. One capstone field quarter consisting of 16 units from the Field Biology Quarter (FBQ), Marine Biology Quarter (MBQ), or preapproved equivalent (see undergraduate adviser)
5. At least 8 units (two courses) from the following: Anthropology 128A, chemistry (except Chemistry and Biochemistry 193A through 199; Chemistry and Biochemistry 153A and 153L are strongly recommended), Earth and space sciences (geology only; except Earth and Space Sciences 188 through 199), ecology and evolutionary biology (except Ecology and Evolutionary Biology 190 through 196), Environment 184, geography (except Geography 188 through 199), mathematics (except Mathematics 105A, 105B, 106, 191 through 199), microbiology, immunology, and molecular genetics (except Microbiology, Immunology, and Molecular Genetics 193A through 199C), physics (except Physics 190 through 199); recommended: taxon-oriented courses in ecological, behavioral, and evolutionary processes such as Ecology and Evolutionary Biology 111, 112, 113A, 114A, 115

Credit for 199 courses from other departments may not be applied.

Courses offered as part of the Field Biology Quarter (FBQ) are open to all qualified students, but strict priority is given to students who are Ecology, Behavior, and Evolution majors, are graduating seniors, have taken a broad range of ecology, behavior, and evolution coursework, and have maintained a good grade-point average.

Each course applied toward requirements for preparation for the major and the major must be taken for a letter grade. Ecology, Behavior, and Evolution majors must earn a C– or better in each course taken as preparation for the major, and at least a 2.0 (C) overall average in all courses applied toward the major.

As prerequisites for the Marine Biology Quarter, students must have a 3.0 overall grade-point average and have taken Statistics 13 or equivalent. Preference for the Marine Biology Quarter is given to Ecology, Behavior, and Evolution and Marine Biology majors. It is strongly recommended that students complete Ecology and Evolutionary Biology 109 and 109L prior to applying for the Marine Biology Quarter. Consult the Undergraduate Advising Office for all requirements for the Marine and Field Biology Quarters.

Marine Biology B.S.

Capstone Major

The Marine Biology major is designed for students who wish to specialize in the area of marine sciences. Completion of this major provides students with both an excellent background in biology and specialization in various disciplines such as oceanography, subtidal and intertidal ecology, and physiology of marine organisms. Graduates are well prepared for postgraduate opportunities in the marine sciences, many other areas of biology, and medicine. The major provides valuable field experience with concomitant individual research opportunities in marine biology.

Preparation for the Major

Life Sciences Core Curriculum

Required: Life Sciences 1, 2, 3, 4; Chemistry and Biochemistry 14A, 14B, 14BL, 14C, 14CL, and 14D, or 20A, 20B, 20L, 30A, 30AL, 30B, and 30BL; Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A; Physics 1A, 1B, 1C, 4AL, and 4BL, or 6A, 6B, and 6C; Earth and Space Sciences 15 or Atmospheric Sciences 1; Statistics 13.

Each core curriculum course must be passed with a grade of C– or better, and all courses must be completed with an overall grade-point average of 2.0 or better. Students receiving a grade below C– in two core curriculum courses, either in separate courses or repetitions of the same course, are subject to dismissal from the major.

Transfer Students

Transfer applicants to the Marine Biology major with 90 or more units must complete the following introductory courses prior to admission to UCLA: one year of general biology with laboratory for majors, preferably equivalent to Life Sciences 1 and 2, one year of calculus, one year of general chemistry with laboratory for majors, and one semester of organic chemistry with laboratory. A second semester of organic chemistry or one year of calculus-based physics is strongly recommended but not required for admission.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Students must complete the following courses:

1. Ecology and Evolutionary Biology 109 and 109L
2. At least 4 laboratory units (one course) from Ecology and Evolutionary Biology 101, 105, 110, 112, 136, 170, or 181
3. At least 4 marine organismic biology or physiology units (one course) from Ecology and Evolutionary Biology 101 (unless taken under item 2), 105 (unless taken under item 2), 107, 112, 128, 137, 142, 168, 170 (unless taken under item 2), or Physiological Science 166
4. At least 4 ecology and behavior units (one course) from Anthropology 128A, Ecology and Evolutionary Biology 100, 116, C119, 122, 126, 128, 129, 133, 136, 137, 142, 151A, 152, 154, 155, 162, or 170
5. At least 4 evolution units (one course) from Ecology and Evolutionary Biology 116, 120, 121, 130, 133, 135, M171, or 175
6. One capstone field quarter consisting of 16 units from the Marine Biology Quarter (MBQ) or preapproved equivalent (see undergraduate adviser)
7. One additional physical, chemical, or geological oceanography course from Atmospheric and Ocean Sciences 102, 103, 104, M105 (or Ecology and Evolutionary Biology M139), 130, Chemistry and Biochemistry 103, 153A, Earth and Space Sciences 100, 116, 119, C141, 153, Ecology and Evolutionary Biology 198B, 199, Environment 184, Geography 100, 101, 103, M106, 123, 130, 169, Mechanical and Aerospace Engineering 103, or 150A

Credit for 199 courses from other departments may not be applied.

Each course applied toward requirements for preparation for the major and the major must be taken for a letter grade. Marine Biology majors must earn a C– or better in each course taken as preparation for the major, and at least a 2.0 (C) overall average in all courses applied toward the major.

As prerequisites for the Marine Biology Quarter, students must have a 3.0 overall grade-point average and have taken Statistics 13 or equivalent. Preference for the Marine Biology Quarter is given to Ecology, Behavior, and Evolution and Marine Biology majors. It is strongly recommended that students complete Ecology and Evolutionary Biology 109 and 109L prior to applying for the Marine Biology Quarter. Consult the Undergraduate Advising Office for all requirements for the Marine and Field Biology Quarters.

Field Biology

The department offers two quarter-long programs of advanced courses in field biology: the Field Biology Quarter (FBQ) and the Marine Biology Quarter (MBQ). These programs focus on the biology of organisms living in their natural environments, emphasize independent student research projects, and take place at field

sites away from the UCLA campus. The course composition varies somewhat from year to year, but each program always carries 16 units of course credit. The Field Biology Quarter involves some combination of Ecology and Evolutionary Biology 103, 113B, 114B, 115, 118, 124, 125, 126, 132, and 134B. The Marine Biology Quarter includes some combination of Ecology and Evolutionary Biology 102, 106, 123, 147, 148, 163, 164, and 165. The Field and Marine Biology Quarters occur during Fall and Spring Quarters. To participate, students must enroll in all courses in the respective program. Participants in both programs are selected by personal interview during Fall or Winter Quarter. Information and applications are available in the Undergraduate Advising Office.

Honors Program

An overall grade-point average of 3.4 and a 3.4 in the major are required for graduation with honors. Highest honors are awarded to majors who have a GPA of 3.6 overall and a 3.6 in the major at graduation and who have successfully completed Ecology and Evolutionary Biology 198A and 198B.

Computing Specialization

Majors in Biology, Ecology, Behavior, and Evolution, and Marine Biology may select a specialization in Computing by (1) satisfying all the requirements for a bachelor's degree in the specified major, (2) completing Program in Computing 10A, 10B, 10C, 30, and 60, and (3) completing one course from Computer Science CM186B, Psychology 186A, or 186B. A grade of C– or better is required in each course, with a combined grade-point average in the specialization of at least 2.0. Students must petition for admission to the program and are advised to do so after completing Program in Computing 10B (petitions should be filed in the Undergraduate Advising Office). Students graduate with a bachelor's degree in their major and a specialization in Computing.

Conservation Biology Minor

The Conservation Biology minor is designed for students who wish to augment their major program of study with courses addressing issues central to the conservation and sustainability of biodiversity and natural ecosystem processes. The minor seeks to provide students with a greater depth of experience and understanding of the role that science can play in developing conservation policy.

To enter the minor, students must (1) be in good academic standing (2.0 grade-point average or better), (2) have completed Life Sciences 1, Ecology and Evolutionary Biology 100, and 116 (or Environment 121) with minimum grades of C or better, and (3) file a petition in the Undergraduate Advising Office, 2325 Life Sciences. All degree requirements, including the specific requirements for this minor, must be fulfilled within the unit maximum set forth by the College of Letters and Science.

Non-life sciences majors wishing to minor in Conservation Biology should be aware that preparation courses in chemistry, life sciences, mathematics, and physics are requisites to some of the upper division courses accepted for the minor.

Required Lower Division Course (5 units): Life Sciences 1.

Required Upper Division Courses (28 units minimum): Ecology and Evolutionary Biology 100, 116 (or Environment 121), and four to six courses from 101, 103, 105, 109, 111, 112, 114A, 122, 129, 151A, 154, 176, 180A.

No more than two upper division required courses may be applied toward both this minor and a major or minor in another department or program, and at least 16 units applied toward the minor must be taken in residence at UCLA. Transfer credit for any of the above is subject to departmental approval; consult the undergraduate counselors before enrolling in any courses for the minor.

Each minor course must be taken for a letter grade, and students must have a minimum grade of C (2.0) in each and an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Ecology and Evolutionary Biology offers Master of Arts (M.A.), Candidate in Philosophy (C.Phil.), and Doctor of Philosophy (Ph.D.) degrees in Biology.

Ecology and Evolutionary Biology

Lower Division Courses

10. Plants and Civilization. (4) Lecture, three hours; demonstration, one hour. Designed for nonmajors. Origin of crop plants; man's role in development, distribution, and modification of food, fiber, medicinal, and other plants in relation to their natural history. P/NP or letter grading.

11. Biomedical Research Issues in Minority Communities. (5) Discussion, four hours. Limited to 30 students. Discussions and student presentations on biomedical research as it affects minority communities, with emphasis on methodology, design, consequences, and ethics of current research. Discussion leaders provide information on preparation and training for research careers. P/NP or letter grading.

12. Biodiversity and Extinction: Crisis and Conservation. (4) Lecture, three hours; discussion, one hour. Examination of ecological and evolutionary principles necessary to understand nature and importance of worldwide environmental crisis. Research by students of specific conservation issues and presentation of results to class. P/NP or letter grading.

13. Evolution of Life. (4) Lecture, three hours; discussion, one hour. Not open to life sciences majors. Limited to 100 students. Introduction to biology within framework of evolutionary theory. Relationships of evolutionary thought to other areas of knowledge and society. Natural selection and origin of variation examined in context of genetics, molecular biology, physiology, phylogeny, population dynamics, behavior, and ecology. Emphasis on critical role of historical processes. P/NP or letter grading.

17. Evolution for Everyone. (5) Lecture, three hours; discussion, two hours. Exploration in detail of Darwinian natural selection, with emphasis on evidence and implications for modern problems people and societies face, including antibiotic resistance, insect resistance to pesticides, and coevolution of pollinators with crop plants. Nature of science in context of questions about ongoing real-time Darwinian processes. Letter grading.

21. Field Biology. (4) Lecture, three hours; discussion, two hours, or field trips, three to four hours. Recommended preparation: Life Sciences 15. Not open for credit to students with credit for course 122 or Life Sciences 1. Introduction to natural history of Western North America, especially Southern California. Classification, distribution, and ecology of common plants and animals. P/NP or letter grading.

25. Marine Biology. (5) Lecture, three hours; discussion, two hours; field trips, two hours. Not open for credit to students with credit for Earth and Space Sciences 15. Physical and chemical processes that take place in oceans, with emphasis on their effects on organisms. P/NP or letter grading.

50. Desert Life. (4) Lecture, three hours; laboratory, two hours. Introduction to fundamental structural, physiological, and behavioral features of desert organisms, with special emphasis on deserts of Western North America. P/NP or letter grading.

95. Lower Division Internship in Biology. (4) Tutorial/fieldwork, three hours per week per unit. Internship course for lower division students to be supervised by Center for Community Learning, fieldwork site, and faculty adviser. Consult Undergraduate Office for more information. May be repeated twice. Individual contract with supervising faculty member required. P/NP grading.

97. Variable Topics in Ecology and Evolutionary Biology. (1 to 4) Seminar, three to 12 hours. Current issues in research in ecology and evolutionary biology. Consult *Schedule of Classes* for topics and instructors. May be repeated for credit with consent of instructor. P/NP or letter grading.

97X. PEERS Forum: Pathways in Science. (1) (Formerly numbered Chemistry M97X and Molecular, Cell, and Developmental Biology M97X.) Lecture, one hour. Limited to students in Program for Excellence in Education and Research in Sciences (PEERS). Series of lectures and workshops to acquaint students with practice of science, opportunities available to participate in research as undergraduate students, and careers available to graduates with science degrees. May be repeated twice, but only 1 unit may be applied toward graduation. P/NP grading.

Upper Division Courses

100. Introduction to Ecology and Behavior. (5) Lecture, three hours; discussion, two hours. Requirement: Life Sciences 1. Not open for credit to students with credit for course 118, C119, 122 through 126, 129, 132 through 134B, 136, or 151B. Introduction to methods and topics in ecology and behavior. Growth and regulation of populations, organization of communities and ecosystems, biogeography, and behaviors animals use to find food, choose mates, and interact in social groups. Understanding scientific method, critical evaluation of research papers, and development of scientific writing skills. Letter grading.

101. Marine Botany. (6) Lecture, four hours; laboratory, six hours; three to four field trips. Requirement: Life Sciences 1. Introduction to biology and ecology of marine plants, including algae, sea grasses, and man-

groves, with focus on form and function of marine plants and their ecological role in different marine habitats and ecosystems. Letter grading.

102. Biology of Marine Invertebrates. (4) Five-week intensive course. Lecture, five hours; laboratory, 15 hours. Requisite: Life Sciences 1. Morphology, systematics, life histories and natural history, ecology, behavior, and physiology of marine invertebrates. Given off campus at marine science center. P/NP or letter grading.

103. Plant Evolution and Systematics. (5) Lecture, three hours; laboratory, three hours; field trip. Requisites: Life Sciences 1, 4. Evolution, systematics, morphology, principles of taxonomy, phytogeography, phylogenetic analysis, speciation, and natural history of plants. Letter grading.

105. Biology of Invertebrates. (6) Lecture, three hours; laboratory/field trips, six hours. Requisite: Life Sciences 1. Introduction to systematics, evolution, natural history, morphology, and physiology of invertebrates. P/NP or letter grading.

106. Experimental Marine Invertebrate Biology. (4 or 6) Lecture, two hours; laboratory, 12 hours. Requisites: course 105, Physiological Science 166 (may be taken concurrently). Offered either as 6-unit quarter-long course or as 4-unit Marine Biology Quarter course. Advanced course of natural history, physiology, biochemistry of invertebrates, with emphasis on independent laboratory and field investigations. P/NP or letter grading.

107. Evolution, Development, and Function of Invertebrate Animals. (6) Lecture, three hours; laboratory, three hours; three weekend field trips. Requisite: course 105 or completion of *Marine Biology Quarter*. Advanced invertebrate biology course exploring evolutionary relationship of animal groups and evolution of marine species, comparative development and developmental genetics of invertebrate form, and form and function as they relate to marine invertebrates. Letter grading.

109. Introduction to Marine Science. (4) Lecture, three hours; discussion, one hour. Requisite: Life Sciences 1. Strongly recommended for prospective *Marine Biology Quarter* students. Introduction to physical and biological world of 70 percent of planet: oceans. Designed to be integrative, with focus on geological evolution of seas, physical and chemical properties of water, and how these abiotic processes shape ecology and evolution of marine organisms and environments. Letter grading.

109L. Introduction to Marine Science Laboratory. (2) Laboratory, three hours. Enforced requisites: course 109 (may be taken concurrently), Life Sciences 1. Introduction to marine environments and methods used to study them. Exploration of variety of concepts in marine science, ranging from oceanography to behavior, primary productivity, and marine biodiversity, with emphasis on experimental design and scientific writing. Letter grading.

110. Vertebrate Morphology. (6) Lecture, three hours; laboratory, five hours. Requisites: Life Sciences 1, 2, 3, 4. Study of vertebrate morphology, function, and evolution from viewpoint of comparative anatomy of adult forms, biomechanics, development, and paleontology. Laboratory study of selected vertebrates. Letter grading.

111. Biology of Vertebrates. (5) Lecture, three hours; laboratory, three hours; four one- to two-day field trips. Requisite: Life Sciences 1. Adaptations, behavior, and ecology of vertebrates. Letter grading.

112. Ichthyology. (6) Lecture, three hours; laboratory, six hours; field trips. Requisite: Life Sciences 1. Highly recommended: courses 110, 111. Biology of freshwater and marine fishes, with emphasis on their evolution, systematics, morphology, zoogeography, and ecology. Field trips to examine fishes of Southern California shoreline, tidepools, and coastal streams. Letter grading.

113A. Herpetology. (5) Lecture, three hours; laboratory, three hours; field trips, three and one half days per term. Requisite: Life Sciences 1. Recommended: course 100. Vertebrate zoology course restricted to

biology of reptiles and amphibians of world, covering current systematics, ecology, behavior, morphology, and physiology of these animals. Letter grading.

113B. Field Herpetology. (8) Requisite: Life Sciences 1. Recommended: courses 100, 111. Two weeks of off-campus research projects followed by two-week lecture course and offered only as part of *Field Biology Quarter*. Biology, particularly ecology and behavior, of reptiles and amphibians in their natural habitat. Students carry out supervised research projects, then write up and orally present their results in seminar fashion. Letter grading.

114A. Ornithology. (5) Lecture, three hours; laboratory/field trips, three hours. Requisite: Life Sciences 1. Recommended: course 100. Systematics, distribution, physiology, behavior, and ecology of birds. Letter grading.

114B. Field Ornithology. (8) Requisite: Life Sciences 1. Recommended: course 100. Two to three weeks of off-campus research projects followed by lecture course and offered only as part of *Field Biology Quarter*. Biology, particularly ecology and behavior, of birds in their natural habitat. Letter grading.

115. Mammalogy. (5) Lecture, three hours; laboratory, three hours. Requisite: Life Sciences 1. Topics in mammalian biology, including evolution, ecology, behavior, functional morphology, systematics, physiology, and biogeography. Letter grading.

116. Conservation Biology. (4) Lecture, three hours; discussion, two hours. Requisite: Life Sciences 1. Recommended: course 100. Not open for credit to students with credit for Environment 121. Study of ecological and evolutionary principles as they apply to preservation of genetic, species, and ecosystem diversity. Discussion sections focus on interactions of science, policy, and economics in conserving biodiversity. Oral and written student presentation on specific conservation issues. Letter grading.

117. Evolution of Vertebrates. (5) Lecture, three hours; laboratory, three hours. Requisite: course 110. Recommended: one general geology course. Fossil record of evolution of vertebrates, with emphasis on paleobiology and morphology of tetrapods. P/NP or letter grading.

118. Plant Adaptations. (8) Lecture, one hour; field trip, 10 hours. Requisite: course 100. *Five-week course offered only as part of Field Biology Quarter*. Field-oriented introduction to mechanisms by which vascular plants adapt themselves to their abiotic and biotic environments using community, population, and ecophysiological levels of integration. Letter grading.

C119. Mathematical Ecology. (6) Lecture, three hours; laboratory, two hours. Requisite: Mathematics 32A. Recommended: course 122, Life Sciences 1. Analytical and numerical exploration of differential equation models to study properties and dynamics of individual organisms, single-species populations, multispecies communities, and integrated ecosystems in natural and disturbed environments. Formal instruction in Mathematica software used to provide powerful and versatile tool to solve diverse quantitative problems in ecology and life and physical sciences. Concurrently scheduled with course C219. Letter grading.

120. Evolution. (4) Lecture, three hours; discussion, two hours. Requisites: Life Sciences 1, 2, 3, 4, Mathematics 3A and 3B, or 31A. Designed for departmental majors specializing in environmental and population biology. Introduction to mechanics and processes of evolution, with emphasis on natural selection, population genetics, speciation, evolutionary rates, and patterns of adaptation. P/NP or letter grading.

121. Molecular Evolution. (4) Lecture, three hours; discussion, one hour. Requisites: Life Sciences 3, 4. Molecular biology, with emphasis on evolutionary aspects. DNA replication, RNA transcription, protein synthesis, gene expression, and molecular evolution. Letter grading.

122. Ecology. (4) Lecture, three hours; discussion, two hours. Requisites: course 100, Life Sciences 1, Mathematics 3B or 31A. Highly recommended: Mathematics 31B, 32A. Designed for departmental majors specializing in environmental and population biology.

Introduction to population and community ecology, with emphasis on growth and distributions of populations, interactions between species, and structure, dynamics, and functions of communities and ecosystems. P/NP or letter grading.

123. Marine Ecology. (4 or 8) Lecture, five hours; laboratory, 15 hours. Recommended requisites: courses 100, 122. Offered either as 8-unit quarter-long course or as 4-unit five-week intensive course given off campus as part of *Marine Biology Quarter*. Survey of current topics in marine ecology, including analysis of primary research literature combined with field study of ecology of marine organisms, populations, communities, and ecosystems. Original research project required. Letter grading.

124. Field Ecology. (4 or 8) Lecture, two hours; laboratory or field trip, 10 hours. Requisites: course 100, Life Sciences 1. Recommended: courses 111, 120, 122. Offered either as 4-unit quarter-long course with weekend field trips or as single field trip conducted between quarters, followed by lectures and tutorials for three weeks. When course is given as part of *Field Biology Quarter*, it is 8 units and lasts for five weeks. Field and laboratory research in ecology; collection, analysis, and write-up of numerical data, with emphasis on design and execution of field studies. Letter grading.

125. Tropical Animal Communication. (4 or 8) Requisites: course 100, Life Sciences 1. Offered either as 4-unit quarter-long course or as 8-unit *Field Biology Quarter* course. Four-unit course has lecture, three hours; discussion, two hours. Animal communication behavior, tropical vertebrate biology, and evolution of information processing systems. Eight-unit course covers same basic lecture material in five or six intensive weeks, followed by extended field trips where students do individual projects in animal communication. Letter grading.

126. Behavioral Ecology. (4 or 8) Requisites: course 100, Life Sciences 1, Mathematics 3C or 32A. Recommended: course 129. Offered either as 4-unit quarter-long course or as 8-unit *Field Biology Quarter* course. Four-unit course has lecture, three hours; discussion, three hours. Animal communication behavior, island biogeography, and evolution of social behavior. Eight-unit course covers same basic lecture material in five intensive weeks, followed by extended field trip where students do individual projects in behavioral ecology. Letter grading.

M127. Soils and Environment. (4) (Same as Environment M127 and Geography M127.) Lecture, three hours; discussion, one hour; field trips. General treatment of soils and environmental implications: soil development, morphology, and worldwide distribution of soil orders; physical, chemical, hydrologic, and biological properties; water use, erosion, and pollution; management of soils as related to plant growth and distribution. P/NP or letter grading.

128. Plant Physiological Ecology. (5) Lecture, three hours; laboratory, three hours; one two-day field trip. Requisites: Life Sciences 1, Physics 1C and 4BL, or 6C or 6CH. Study of plant/environment interactions under natural conditions. Transpiration and photosynthesis, leaf temperatures, and water movement in soil/plant/atmosphere continuum. Letter grading.

129. Animal Behavior. (4) Lecture, three hours; discussion, two hours. Requisites: course 100, Life Sciences 1. Introduction to behavioral ecology. Methods and results of evolutionary approaches to study of animal behavior, including foraging strategies, social competition, sexual selection, mating systems, cooperation, and social organization. Letter grading.

130. Principles of Systematic Biology. (4) Lecture, three hours; discussion, two hours. Requisite: Life Sciences 1. Recommended: courses 120, 135. Concepts, principles, and methods of comparative biology as they apply to inference of evolutionary relationships among organisms. Principles and application of biological nomenclature. Letter grading.

132. Field Behavioral Ecology. (8) Lecture, two hours; laboratory/field trip, 10 hours. Requisites: course 100, Life Sciences 1. Recommended: course 129. *Five-week course offered only as part of Field Biology Quarter*. Field research in behavioral ecology,

emphasizing animal communication. Design and execution of individual and small group field projects during extended field trip. Letter grading.

133. Elements of Theoretical and Computational Biology. (4) Lecture, three hours; laboratory, two hours; discussion, one hour. Requisites: Life Sciences 1, 2, 3, 4, Mathematics 3A, 3B, and 3C, or 31A and 31B. Strongly recommended: elementary statistics course. Introduction of basic core mathematical ideas and models necessary to understand contemporary ecology and evolutionary biology. Population ecology and growth, community ecology, population genetics, natural selection. P/NP or letter grading.

134A. Physiological Ecology of Desert Animals. (5) Lecture, three hours; laboratory, two hours; two two-day field trips per term. Requisite: Life Sciences 1. Recommended: course 100. Consideration of physiological, behavioral, morphological, and ecological mechanisms desert animals use to enhance their survival in arid habitat. Letter grading.

134B. Field Physiological Ecology of Desert Animals. (8) Field course. Requisite: Life Sciences 1. Recommended: course 100. Two weeks of off-campus research projects with two-week lecture course (four hours per day) and offered only as part of *Field Biology Quarter*. Consideration of physiological, behavioral, morphological, and ecological mechanisms desert animals use to enhance their survival in arid habitat. Students carry out supervised research projects, then write up and orally present their results in seminar fashion. Letter grading.

135. Population Genetics. (4) Lecture, three hours; discussion, one hour. Requisite: Life Sciences 4. Strongly recommended: course 100, Mathematics 31A, 31B. Basic principles of genetics of population, dealing with genetic structure of natural populations and mechanisms of evolution. Equilibrium conditions and forces altering gene frequencies, polygenic inheritance, molecular evolution, and methods of quantitative genetics. Letter grading.

136. Ecology, Behavior, and Evolution Laboratory. (6) Lecture, four hours; laboratory, eight hours; field trips, six and one half days per term. Requisites: course 100, Life Sciences 1, Mathematics 3C or 32A. Strongly recommended: course 120 or 122 or 129. Designed for Ecology, Behavior, and Evolution majors. Laboratory and field exercises on population genetics, growth, and regulation; competition and predation; behavioral interactions; species' diversity and distribution. Methodological aspects from theoretical models and computer simulations to laboratory and garden experiments to fieldwork. Mandatory field trips, including two weekend trips. Letter grading.

137. Chemical Communication. (4) Lecture, three hours; discussion, one hour. Requisites: Chemistry 14A, 14B, 14BL, 14C, 14CL, and 14D, or 20A, 20B, 20L, 30A, 30AL, 30B, and 30BL, Life Sciences 1, 2, 3. Chemical signals are most important means by which organisms communicate. Exploration of how chemical signals are produced, transported, and influence behavior of microbes, plants, and animals. Synthetic approach, with emphasis on applications to cell biology, physiology, and ecology. P/NP or letter grading.

M139. Introduction to Chemical Oceanography. (4) (Same as Atmospheric and Oceanic Sciences M105.) Lecture, three hours. Introductory course for physical sciences, life sciences, and engineering majors interested in oceanic environment. Chemical composition of oceans and nature of physical, chemical, and biological processes governing this composition in past and present. Cycles of major and minor oceanic constituents, with focus on those that are most important for life (i.e., carbon, nitrogen, phosphorus, silicon, and oxygen). Investigation of primary production, export production, remineralization, diagenesis, air-sea gas exchange processes. Letter grading.

142. Aquatic Communities. (4) Lecture, three hours; discussion, one hour. Enforced requisite: Life Sciences 1. Overview of species and communities in marine and freshwater environments. Exploration of interactions of physical and biological factors that shape

communities and how scientists test hypotheses. Emphasis on critical reading of primary literature. Letter grading.

M145. Advanced Paleontology. (4) (Same as Earth and Space Sciences M118.) Lecture, three hours. Requisite: course 110 or 117 or Earth and Space Sciences 116. Consideration of major factors that have influenced history of life, including analytical approaches to analyzing patterns in fossil record, nature of rock record, and contribution of data from stable isotopes, functional morphology, phylogenetics, and developmental biology. P/NP or letter grading.

146. Physicochemical Biology. (4) Lecture, three hours; discussion, one hour. Requisites: Life Sciences 1, 2, 3, Physics 1C and 4BL, or 6C or 6CH. Physicochemical analysis of physiology of cells and organelles, with emphasis on membranes, thermodynamics of solute and water movement, light absorption, and subcellular energy transduction. Letter grading.

147. Biological Oceanography. (4) Five-week intensive course. Lecture, five hours; laboratory, 15 hours. Requisites: Chemistry 14A, 14B, and 14BL, or 20A, 20B, 20L, and 30AL, Life Sciences 1, 3. Lectures include physical, chemical, and biological factors affecting abundance and distribution of organisms in marine environment. Laboratory includes experimental studies of local marine organisms, with emphasis on primary and secondary production and nutrient flux. Letter grading.

148. Biology of Marine Plants. (4) Five-week intensive course. Lecture, five hours; laboratory, 15 hours. Requisites: Chemistry 14A, 14B, and 14BL, or 20A, 20B, 20L, and 30AL, Life Sciences 1, 3. Introduction to general biology of marine algae, including basics of structure reproduction, life histories, systematics, and introduction to physiology and ecology of marine algae. Techniques in culture and laboratory investigation and utilization of algae. Given off campus at marine science center. Letter grading.

151A. Tropical Ecology. (4) Lecture, one hour; discussion, two hours. Requisite: Life Sciences 1. Broad introduction to biodiversity, community structure, and dynamics and ecosystem function of range of tropical forest habitats. Discussion of such themes as biogeography, forest structure, plant growth forms, animal communities, herbivory, forest dynamics, and disturbance regimes. P/NP or letter grading.

151B. Field Tropical Ecology. (8) Lecture, three hours; fieldwork, five hours. Requisites: course 100, Life Sciences 1. Two weeks of off-campus research projects followed by two-week lecture course and offered only as part of *Field Biology Quarter*. Introduction to biodiversity, community structure, and dynamics and ecosystem function in tropical forest habitat. Letter grading.

152. World Vegetation Ecology and Ecophysiology. (4) Lecture, three hours; discussion, one hour. Enforced requisite: Life Sciences 1. Diversity of physiological and ecological adaptations in biomes of world, explaining distribution and dynamics of world vegetation types. Focus on processes across scales from cells to ecosystem to globe, instrumentation for environmental and ecophysiological measurements, and experiments used to make discoveries about plant adaptation. Letter grading.

154. California Ecosystems. (5) Lecture, three hours; laboratory or field trip, four hours. Requisite: Life Sciences 1. Recommended: course 100. Introduction to structure, biodiversity, and dynamics of California ecosystems, with focus on Southern California, and impact of human activities on these systems. P/NP or letter grading.

155. Community Ecology. (4) Lecture, three hours; discussion, one hour. Enforced requisite: Life Sciences 1. Recommended: course 100 or 122. Community ecology is study of biodiversity in ecological context: structure and dynamics of natural species assemblages in space and time, and ecological and evolutionary mechanisms that determine which species are present or absent from particular assemblages. Examination of existing theories of community organization and evidence, both observational and experimental, bearing on these theories. Consideration of di-

verse array of communities—plant, animal, microbial, terrestrial, and marine—to give appreciation of extraordinary natural history and diversity of life on Earth as it exists in its living ecological context. Discussion of how ecological communities are responding now and will respond in future to anticipated global change, and conservation implications of these changes. Letter grading.

M158. Cell Biology. (6) (Same as Physiological Science M158.) Lecture, three hours; laboratory, six hours. Requisites: Chemistry 14A, 14B, and 14BL, or 20A, 20B, 20L, and 30AL, Life Sciences 1, 3, 4. Cell biology of eukaryotic cells, with emphasis on correlation of structure and function at molecular, organellar, and cellular levels. Letter grading.

160. Introduction to Plant Biology. (4) Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course 162. Introduction to aspects of plant biology. Topics include plant body, reproduction, plant diversity, gene expression, and basic plant function. Letter grading.

162. Plant Physiology. (4) Lecture, three hours; discussion, one hour. Requisites: Life Sciences 1, 2, 3. Basic aspects of plant function, including photochemical, biochemical, and physiological aspects of photosynthesis. Carbon and nitrogen metabolism and its regulation; organellar interactions and compartmentation. Water relations, ion transport, flowering, hormone action, and plant responses to stress. Letter grading.

162L. Plant Physiology and Ecophysiology Laboratory. (2) Laboratory, four hours. Enforced requisites: Life Sciences 1, 2, 3. Enforced corequisite or requisite: course 152 or 162. Focus on whole-plant physiology and ecophysiology from biochemical and molecular processes to whole-plant function and field performance to gain understanding and appreciation of plant function, including dynamic processes of growth, development, and reproduction. Exercises provide training in approaches and instrumentation such that students become scientists, applying physiological techniques to answer questions on plant function. Letter grading.

163. Biology of Marine Tetrapods. (4) Five-week intensive course. Lecture, five hours; laboratory and fieldwork, 15 hours. Requisites: Chemistry 14A, 14B, and 14BL, or 20A, 20B, 20L, and 30AL, Life Sciences 1, 3. Highly recommended: course 111. Survey of higher vertebrates living in marine habitats, including estuarine amphibians, marine reptiles, seabirds, and marine mammals. Laboratory emphasizes observational and experimental approaches to study of morphology, systematics, ecology, and behavior of local marine birds and mammals. Given off campus at marine science center. Letter grading.

164. Field Biology of Marine Fishes. (4) Five-week intensive course. Lecture, five hours; laboratory, 15 hours. Requisite: Life Sciences 1. Recommended: Mathematics 3A, 3B, 3C. Selected aspects of natural history, ecology, and behavior of diverse assemblage of local marine fishes. Fieldwork strongly emphasized. Given off campus at marine science center. P/NP or letter grading.

165. Ecological Physiology of Marine Vertebrates. (4) Five-week intensive course. Lecture, five hours; laboratory, 15 hours. Requisites: Chemistry 14B and 14BL, or 20B and 30AL, Life Sciences 1, 3. Recommended: Mathematics 3C or 32A, Physics 1C and 4BL, or 6C or 6CH. Introduction to physiological adaptations of marine vertebrates to major physicochemical variables in world oceans and to major marine habitats. Given off campus at marine science center. Letter grading.

168. Marine Phytoplankton Physiology. (4) Lecture, three hours; discussion, one hour. Requisites: Life Sciences 1, 2. Key physiological processes, with emphasis on photosynthesis, carbon and nutrient uptake, mineralization, and toxin production of key components of marine phytoplankton, such as cyanobacteria, diatoms, dinoflagellates, and coccolithophores. Letter grading.

170. Animal Environmental Physiology. (6) Lecture, three hours; laboratory, six hours. Requisites: Chemistry 14D, or 30B and 30BL, Life Sciences 1, 2,

3, 4, Mathematics 3C or 32A, Physics 1C and 4BL, or 6C or 6CH. Not open for credit to students with credit for Physiological Science 166. Designed for Ecology, Behavior, and Evolution majors. Introduction to physiology (function) of animals' organs and organ systems, with emphasis on environmental interactions and ecological adaptations. Letter grading.

M171. Great Adaptations: Origins of Complexity in Nature. (4) (Same as Anthropology M125A.) Lecture, three hours. Enforced prerequisite: course 13 or 120 or Anthropology 7 or Life Sciences 1. Evolution of complex adaptations in nature. Examination of fundamental processes underlying natural selection and evolution of adaptation: Darwin's postulates, constraints on adaptation, levels of explanation in biology, methods for identifying adaptations. Evaluation of examples of complex adaptations in nature. Letter grading.

175. Evolutionary Dynamics of Sexual Conflict. (4) Lecture, three hours; discussion, one hour. Enforced prerequisite: Life Sciences 1. Fitness dynamics of reproduction when females and males are in conflict over reproductive decisions, with focus on animals with human examples as appropriate. Emphasis on natural selection thinking, sexual selection, and origins of sexual conflict, including Fisherian sex allocation, evolution of manipulation through deceptive communication, and theory of Darwinian sexual conflict. Letter grading.

176. Ecological Ethics. (2) Seminar, two hours. Requisite: Life Sciences 1. Debates and discussions on current ethical considerations relevant to fields of ecology, evolution, and behavior. Letter grading.

180A-180B. Seminars: Biology and Society. (2-4) (Formerly numbered 180.) Seminar, two hours (course 180A) and four hours (course 180B). Investigations and discussions of current socially important issues involving substantial biological considerations, either or both as background for policy and as consequences of policy. May be repeated once for credit with instructor change. Letter grading.

181. Parasitology. (6) Lecture, three hours; laboratory, six hours. Requisites: Life Sciences 1, 3. Introduction to principles, biology, and evolution of infectiousness, symbiosis, and parasitism, emphasizing protozoan and helminth parasites, including those of man. Letter grading.

187. Variable Topics in Ecology and Evolutionary Biology. (4) Lecture, three hours; discussion, one hour. Requisites: Life Sciences 1, 2, 3, 4. Investigation, discussion, and study of current important issues involving substantial biological considerations in ecology and evolutionary biology. Contact Undergraduate Advising Office for current topics. P/NP or letter grading.

188. Special Courses in Ecology and Evolutionary Biology. (2) Seminar, two hours. Departmentally sponsored experimental or temporary courses, such as those taught by visiting faculty members. May be repeated for credit. P/NP or letter grading.

190. Research Colloquia in Ecology and Evolutionary Biology. (1) Seminar, one hour. Designed to bring together students undertaking supervised tutorial research in seminar setting with one or more faculty members to discuss their own work or related work in discipline. Led by one supervising faculty member. P/NP grading.

191. Variable Topics Research Seminars: Ecology and Evolutionary Biology. (4) Seminar, three hours. Seminars on current issues in research in ecology and evolutionary biology. Consult *Schedule of Classes* for topics and instructors. If content is approved in advance by Undergraduate Advising Office, undergraduate departmental majors may petition to use course to satisfy or partially satisfy elective requirement. May be repeated for credit with consent of instructor. P/NP or letter grading.

192A-192B. Undergraduate Assistant in Ecology and Evolutionary Biology. (4-2) Seminar, 12 hours (course 192A) and six hours (course 192B). Limited to juniors/seniors. Training and supervised practicum for advanced undergraduate students in assisting with courses related to biology. Students assist in preparation of materials and development of innovative pro-

grams with guidance of faculty members in small course settings. Consult Undergraduate Advising Office for further information. May not be applied toward course requirements for departmental majors. May be repeated for credit. P/NP grading.

193. Journal Club Seminars: Ecology and Evolutionary Biology. (1) Seminar, two hours. Enforced corequisite: one course from 198A through 198D or 199. Limited to undergraduate students. Development of in-depth understanding of and ability to discuss current literature in field of students' own research. May be repeated for credit. P/NP grading.

194A. Research Group or Internship Seminars: Access to Research Careers. (2) Seminar, six hours. Designed for juniors/seniors in research traineeships or those who have strong commitment to pursue graduate studies in molecular, biochemical, physiological, or biomedical fields. Weekly presentation and discussion of paper selected from current literature. No more than 4 units may be applied toward departmental majors. May be repeated for credit. Letter grading.

194B. Research Group or Internship Seminars: Ecology and Evolutionary Biology. (1) Seminar, two hours. Corequisite: course 198A or 198B or 198C or 198D or 199. Designed to encourage participation and stimulate progress in specific research areas for undergraduate students who are part of departmental research group or internship. Discussion of use of specific research methods and current literature in field or of research of faculty members or students. May be repeated for credit. P/NP or letter grading.

195. Community or Corporate Internships in Ecology and Evolutionary Biology. (4) Tutorial, 12 hours. Internship course for juniors/seniors to be supervised by Center for Community Learning, fieldwork site, and faculty adviser. Consult Undergraduate Advising Office for more information. Students meet on regular basis with instructor and provide periodic reports of their experience. May not be applied toward requirements for departmental majors. May be repeated twice for credit. Individual contract with supervising faculty member required. P/NP grading.

196. Research Apprenticeship in Ecology and Evolutionary Biology. (2 to 4) Tutorial, three hours per week per unit. Limited to juniors/seniors. Entry-level research apprenticeship for upper division students under guidance of faculty mentor. May be repeated for credit. Individual contract required. P/NP grading.

198A-198D. Honors Research in Ecology and Evolutionary Biology. (4 each) Tutorial, 12 hours. Limited to juniors/seniors. Supervised individual research designed to broaden and deepen students' knowledge of some phase of biology. Must be taken with Ecology and Evolutionary Biology Department faculty for at least two terms and for total of at least 8 units. Eight units may be applied toward departmental majors. Individual contract required. In Progress (198A) and letter (198B) grading. Students may elect to enroll in additional research through courses 198C and 198D (letter grading). Report on progress must be presented to undergraduate adviser each term 198 course is taken.

199. Directed Research in Ecology and Evolutionary Biology. (2 to 4) Tutorial, six to 12 hours. Preparation: submission of written proposal outlining study or research to be undertaken. Studies to involve laboratory or field-related research, not literature surveys or library research. Proposal to be developed in consultation with instructor and submitted for approval to undergraduate adviser before day instruction begins in that term. Limited to juniors/seniors. Supervised individual research under guidance of faculty mentor. At end of term culminating report describing progress of study or research and signed by student and instructor must be presented to undergraduate adviser. Only one 199 course may be applied toward departmental majors. May be repeated for credit. Individual contract required. Letter grading.

Graduate Courses

M200A. Evolutionary Biology. (4) (Same as Earth and Space Sciences M216.) Lecture, two hours; discussion, two hours. Current concepts and topics in

evolutionary biology, including microevolution, speciation and species concepts, analytical biogeography, adaptive radiation, mass extinction, community evolution, molecular evolution, and development of evolutionary thought. S/U or letter grading.

200B. Ecology. (4) Lecture, two hours; discussion, two hours. Principles and current topics in ecology. Topics may include island biogeography, disturbance ecology, chemical ecology, and physiological ecology. S/U or letter grading.

200C. Animal Behavior. (4) Lecture, two hours; discussion, two hours. Survey of major topics in field of behavioral ecology. Topics include introduction to variety of research pursuits in field and questions and debates at leading edges of research. S/U or letter grading.

203. Marine Botany and Physiology. (4) Lecture, two hours; discussion, one hour; laboratory, six hours; experimental project. Designed for graduate students. Structure, reproduction, life histories, and biology of marine algae, with emphasis on physiological ecology and biochemistry. Techniques in culture and physiological, ecological, and biochemical investigation of algae. Given off campus at marine science center. S/U or letter grading.

204. Advanced Biology of Algae. (4) Lecture, four hours; discussion, one hour. Consideration of current research in experimental phycology. Topics include discussion of appropriate aspects of chemical and physical oceanography and limnology; algal physiology; biochemistry, physiological ecology, and algal processes in ocean and freshwater habitats. S/U or letter grading.

205. Marine Invertebrate Biology. (4) Lecture, four hours; laboratory, eight hours. Functional morphology, life histories, and systematics of marine invertebrates of all major and most minor taxa; emphasis on living animal and its habitat. Given off campus at marine science center. S/U or letter grading.

206. Advanced Ichthyology. (4) Lecture, three hours; laboratory, three hours. Requisite: course 111 or 112. Advanced study of various aspects of fish biology. Theme varies from year to year. May be repeated for credit. S/U or letter grading.

208. Advanced Vertebrate Morphology. (4) Lecture, two hours; laboratory, eight hours. Requisite: course 110. Emphasis on functional approach to evolution of vertebrate locomotor, feeding, and circulatory systems. Laboratory includes comparative and experimental analyses of morphological adaptation. Independent project required. May be repeated once for credit. S/U or letter grading.

209. Behavior of Arthropods. (4) Lecture, three hours; discussion, one hour. Advanced study of topics in behavior of terrestrial arthropods, including communication, feeding, reproductive, and social behavior. Emphasis on both mechanistic and adaptive approaches toward understanding behavior. Independent project required. S/U or letter grading.

210. Advanced Ornithology. (4) Lecture, two hours; laboratory, two hours; fieldwork, two hours. Requisite: course 114A. Advanced study of topics in modern avian biology. Emphasis on experimental approaches to investigations of physiology (energetics, nutrition, osmoregulation), ecology (population and community organization), and behavior (foraging, breeding, sociality). S/U or letter grading.

M216. Statistical Methods for Life Sciences. (4) (Same as Statistics M251.) Lecture, three hours. Requisite: Statistics 13. Fundamentals of statistics as applied in life sciences, including statistical inferences for continuous and categorical data (estimation, testing of means and proportions, ANOVA) study design, linear regression, and introduction to principle components analysis. Methods to be implemented on computer with SAS. S/U or letter grading.

217. Marine Ecology. (4) Lecture, four hours; discussion, one hour. Designed for graduate students. Structure, diversity, and energetics of marine communities; behavior, population dynamics, and biogeography of component species; associated oceanography and geology. Given off campus at marine science center. S/U or letter grading.

218. Oceanology. (4) Lecture, four hours; discussion, one hour. Designed for graduate students. Ecology and dynamics of pelagic and benthic associations; physicochemical properties of seawater and marine substrates and their biological significance; qualitative and quantitative methods of oceanology. Given off campus at marine science center. S/U or letter grading.

C219. Mathematical Ecology. (6) Lecture, three hours; laboratory, two hours. Requisite: Mathematics 32A. Recommended: course 122, Life Sciences 1. Analytical and numerical exploration of differential equation models to study properties and dynamics of individual organisms, single-species populations, multispecies communities, and integrated ecosystems in natural and disturbed environments. Formal instruction in Mathematica software used to provide powerful and versatile tool to solve diverse quantitative problems in ecology and life and physical sciences. Concurrently scheduled with course C119. Letter grading.

224. Marine Molecular Biology. (8) Lecture, three hours; laboratory, eight hours. Preparation: background in marine sciences, basic cell biology and biochemistry. Ten-week intensive course designed to train marine biologists in advanced techniques of cell and molecular biology. Independent project required. Given off campus at marine science center. S/U or letter grading.

M226. Global Health Measures for Biological Emergencies. (4) (Same as Epidemiology M226.) Lecture, four hours. Requisite: Epidemiology 220. Mitigation of bioterrorism falls outside traditional public health programs and public health graduate education. Because of seriousness of such threats, it is important that individuals trained in public health understand problems and responses. Letter grading.

M231. Molecular Evolution. (4) (Same as Earth and Space Sciences M217.) Lecture, two hours; discussion, two hours. Series of advanced topics in molecular evolution, with special emphasis on molecular phylogenetics. Topics may include nature of genome, neutral evolution, molecular clocks, concerted evolution, molecular systematics, statistical tests, and phylogenetic algorithms. Themes may vary from year to year. May be repeated for credit. S/U or letter grading.

232. Advanced Ecology. (4) Lecture, three hours; discussion, one hour; field trip, three hours. Requisite: course 122. Concepts and topics in ecology, evolutionary or behavioral ecology, or theoretical ecology. Topics vary from year to year and may include island biogeography, tropical biology, biodiversity, modeling in ecology, habitat selection, community structure and organization, and ecology and evolution of reproductive rates. May be repeated for credit. S/U or letter grading.

235. Population Genetics. (4) Lecture, three hours; discussion, one hour. Basic principles of genetics of population, dealing with genetic structure of natural populations and mechanisms of evolution. Equilibrium conditions and forces altering gene frequencies, polygenic inheritance, molecular evolution, and methods of quantitative genetics. S/U or letter grading.

236. Seminar: Marine Molecular Biology. (4) Seminar, 10 hours. Requisite: course 224. Seminar on current issues and work in marine molecular biology. Given off campus at marine science center. S/U or letter grading.

M238. Ocean Biogeochemical Dynamics and Climate. (4) (Same as Atmospheric and Oceanic Sciences M235.) Lecture, three hours. Interaction of ocean biogeochemical cycles with physical climate system. Biogeochemical processes controlling carbon dioxide and oxygen in oceans and atmosphere over time-scales from few million years to several years. Anthropogenic perturbation of global carbon cycle and climate. Response of ocean ecosystems to past and future global changes. Use of isotopes to study ocean biogeochemical cycles and climate. Interactions between biogeochemical cycles on land and in ocean. S/U or letter grading.

240. Physiology of Marine Animals. (4) Lecture, four hours; discussion, one hour. Designed for graduate students. Lecture and laboratory studies on cellular, tissue, organ, and animal physiology; regulatory

biology; metabolic characteristics of cells, energy transformations. Given off campus at marine science center. S/U or letter grading.

243. Animal Communication. (4) Lecture, three hours; discussion, one hour. Requisites: Mathematics 3C or 32A, and Physics 1C and 4BL, or 6C or 6CH. Physical properties of animal signals and physiological mechanisms underlying their generation and reception. Lectures treat signal analysis, signal transmission, and receptor design in light of constraints placed on each sensory modality. Examples of communication systems using visual, auditory, chemical, electrical, and magnetic cues, with emphasis on biological adaptations for efficiently signaling species-specific information. S/U or letter grading.

244. Advanced Insect Physiology. (4) Lecture, two hours; laboratory, five hours. Detailed discussion of current problems in insect physiology, with advanced laboratory. S/U or letter grading.

247. Advanced Plant Biology. (4) Lecture, three hours; discussion, two hours. Requisite: course 162 or Molecular, Cell, and Developmental Biology C141. Open to undergraduates with consent of instructor. Designed to expose first-year graduate students to topics of current interest in plant biology. Subjects include plant genetics, growth and development, organelle structure, development and function, and plant-specific metabolic processes (photosynthesis, nitrogen fixation, metabolism of small molecules). S/U or letter grading.

250. Professional Skills for Biological Research. (2 to 3) Seminar, two hours. Preparation, writing, and submission of research proposals. Collection and maintenance of field and laboratory data, preparation of scientific presentations, review of literature, and publishing strategies. Optional field trip offered during some years for 1 extra unit. S/U or letter grading.

251. Seminar: Systematics. (2) Seminar, two to four hours. Current topics in systematic biology, including methods development and specific applications in study of phylogeny. Theme varies from year to year. May be repeated for credit. S/U or letter grading.

253. Seminar: Plant Structure. (2) Seminar, two hours. S/U or letter grading.

255. Seminar: Invertebrate Zoology. (2) Seminar, two hours. S/U or letter grading.

259. Seminar: Herpetology. (2) Seminar, three hours. Seminar on current approaches to herpetology. Main theme varies from year to year in areas such as biogeography, ecology, behavior, environmental physiology. S/U or letter grading.

260. Seminar: Biology of Terrestrial Vertebrates. (2) Seminar, two hours. S/U or letter grading.

261. Molecular Ecology of Plant Populations. (2) Seminar, two hours. Requisite: course M200A. Integration of ecological, population genetic, and evolutionary concepts to understand evolutionary ecology and conservation biology of plant populations in natural and disturbed settings, with application to both terrestrial and marine systems. Letter grading.

263. Seminar: Population Genetics. (2 or 4) Seminar, three to six hours. Seminar on topics of current interest in population genetics, such as kin selection, sociobiology, cultural evolution, conservation genetics, etc. S/U or letter grading.

264. Seminar: Stomatal Function. (4) Seminar, two hours; discussion, two hours. Open to undergraduates with consent of instructor. Structure and function of guard cells; gas exchange; environmental and hormonal regulation of stomatal responses; sensory transduction; stomatal adaptations. S/U or letter grading.

265. Seminar: Biophysical Plant Ecology. (2) Seminar, two hours. S/U or letter grading.

267. Seminar: Current Topics in Evolutionary Ecology. (2) Seminar, two hours. S/U or letter grading.

268. Seminar: Population Biology. (2) Seminar, two hours. S/U or letter grading.

269. Seminar: Animal Ecology. (2) Seminar, three hours. Advanced study of specific topics in animal ecology and related fields. S/U or letter grading.

270. Seminar: Environmental Physiology. (2) Seminar, two hours. S/U grading.

271. Seminar: Phycology and Mycology. (2) Seminar, two hours. Requisite: course 101. Advanced study in biology of algae and fungi. Topics in physiological ecology, physiology, and biochemistry of algae and fungi, and their industrial uses. Algae and fungi as experimental organisms. Phylogeny and origin of eukaryote organisms. Evolutionary origin of chloroplasts. S/U or letter grading.

272. Seminar: Marine Biology. (2) Seminar, two hours. S/U or letter grading.

273. Seminar: Entomology. (2) Seminar, two hours. Discussion of specific topics in entomology and related fields. Main theme varies from year to year, but usually emphasizes areas such as behavior, ecology, and evolution. S/U grading.

274. Seminar: Behavioral Ecology. (2) Seminar, two hours. Discussion of theoretical and empirical aspects of topics in behavioral ecology. S/U or letter grading.

279. Seminar: Evolutionary Biology. (2) Seminar, two hours. Requisite: course M231. Emphasis on particular issue in evolutionary biology, varying in topic whenever offered. Topics may include advances in phylogenetic methodology; relationship between development and evolution; biogeography, climate change, and faunal evolution; dispersal mechanisms and macroevolutionary patterns; adaptation and diversification; macroevolutionary patterns in fossil record. S/U or letter grading.

282. Seminar: Ichthyology. (2) Seminar, two hours. Requisite: course 111 or 112. Student presentations and discussion of specific topics in ichthyology. Theme varies from year to year. May be repeated for credit. S/U or letter grading.

M286. Seminar: Statistical Problem Solving for Population Biology. (2) (Same as Statistics M286.) Seminar, two hours. Designed for graduate students. Statistical solutions to complex data analysis and/or experimental design problems encountered by biology graduate students in their own research. S/U or letter grading.

288. Seminar: Plant Cell Biology. (2) Seminar, two hours. Recommended preparation: course 162. S/U or letter grading.

M290. Seminar: Comparative Physiology. (2) (Same as Physiological Science M290.) Seminar, two and one-half hours. Discussion of specific topics in comparative physiology of animals. Topics vary from year to year, with emphasis on systems physiology, neuroethology, or behavioral physiology. S/U or letter grading.

291. Seminar: Physiology and Biochemistry of Arthropods. (2) Seminar, two hours. S/U or letter grading.

296. Seminar: Ecology and Evolutionary Biology. (1 to 4) Seminar, three hours. Advanced study and analysis of current topics in cellular, organismic, and population biology. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

297. Selected Topics in Ecology and Evolutionary Biology. (1 to 4) Seminar, one to three hours. Advanced study and analysis of variable research topics in research issues in ecology and evolutionary biology. Consult *Schedule of Classes* for topics and instructors. May be repeated for credit with consent of instructor. S/U or letter grading.

299. Seminar: Parasitology. (2) Seminar, two hours. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Preparation for Teaching Biology in Higher Education. (2) Seminar, to be arranged. Designed for graduate students. Study of problems and methodologies in teaching biology, which includes workshops, seminars, apprentice teaching, and peer observation. S/U grading.

496. Preparation for Teaching Biology in Higher Education. (2) Lecture, two hours. Designed for graduate students. Strongly recommended as sequel to course 495 discussions on teaching, theory, and development of advanced skills. Study of methods and approaches to teaching of specific areas in biology, with emphasis on laboratory teaching, instructor/student interaction, and undergraduate motivation. S/U grading.

596. Directed Individual (or Tutorial) Studies. (2 to 12) Tutorial, to be arranged. Letter grading.

596F. Directed Individual (or Tutorial) Studies. (2 to 8) Tutorial, to be arranged. Given off campus at marine science center. S/U or letter grading.

597. Preparation for M.A. Comprehensive Examination or Ph.D. Qualifying Examinations. (2 to 12) Tutorial, to be arranged. May not be applied toward M.A. or Ph.D. course requirements. S/U grading.

598. M.A. Thesis Research and Writing. (2 to 12) Tutorial, to be arranged. S/U grading.

599. Ph.D. Dissertation Research and Writing. (2 to 12) Tutorial, to be arranged. S/U grading.

ECONOMICS

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Professors

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Sandra E. Black, Ph.D.
Moshe Buchinsky, Ph.D.
Dora L. Costa, Ph.D.
Michael R. Darby, Ph.D. (*Warren C. Corder Professor of Money and Financial Markets*)
Sebastian Edwards, Ph.D. (*Henry Ford II Professor of International Management*)
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Associate Professors

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Dayanand S. Manoli, Ph.D.
Moritz Meyer-ter-Vehn, Ph.D.
Marek G. Pycia, Ph.D.
Pierre-Olivier Weill, Ph.D.
Mark L. Wright, Ph.D.

Scope and Objectives

The economics undergraduate program is designed for students who wish to gain a thorough understanding of both empirical and theoretical approaches to economics. Emphasis is on economic principles applied to resolving interpersonal conflicts of interest and coordinating productive activity in a world of scarce resources. Because students must gain a thorough theoretical and technical competence before extensive study of the applied specializations in the discipline, the analytic core of the major in Economics is closely structured. Some courses are appropriate for nonmajors, but the curriculum is most suitable for students who wish to make the study of economics the primary focus in their undergraduate education.

The undergraduate major provides analytical training in reference to socioeconomic phenomena and provides an excellent theoretical background for those pursuing graduate education in economics, law, management, public administration, journalism, social welfare, architecture and urban planning, and education.

The graduate program is designed primarily for students pursuing the Ph.D. degree. The doctorate is awarded to those students who have achieved the level of study and training required for a professional economist. The degree recognizes students' ability to make scholarly contributions in their fields of specialization and to undertake advanced research in those areas.

Undergraduate Study

Economics B.A.

Admission

Application for the Economics major should be filed at the undergraduate counselors office in 2263 Bunche Hall. To apply, students must have completed at least 72 quarter units (but no more than 137 quarter units), one 12-unit term in residence in regular session at UCLA, and all courses listed under Preparation for the Major. In addition, they must be enrolled in UCLA regular session at the time of application.

Economics Premajor

While students are completing the lower division preparation courses for the major, they may be classified as Economics premajors.

Preparation for the Major

Required: Economics 1, 2, 11, 41; one Writing II course or English Composition 129B; Mathematics 31A, and 31B or 31E. Each course must be taken for a letter grade. A 2.0 (C) grade is required in each premajor course. To enter the major, students must have a minimum 2.5 grade-point average in the economics and mathematics preparation courses and a GPA of at least 2.0 in any upper division courses taken for the major before applying.

Repetition of more than one preparation course or of any preparation course more than once results in automatic denial of admission to the major.

Transfer Students

Transfer applicants to the Economics major with 90 or more units must complete the following introductory courses prior to admission to UCLA: one microeconomics course, one macroeconomics course, two calculus courses from the mathematics/physical sciences sequence, and one English critical reading and writing course.

Transfer students are required to take Economics 41 at UCLA rather than prior to transfer.

Transfer credit for any of the above is subject to department approval; consult an undergraduate counselor before enrolling in any courses for the major.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Nine upper division courses in economics which must include Economics 101, 102, and one course from at least three different fields in economics selected from the major fields list below. Each course must be taken for a letter grade. Former courses 100, 110, and 120 may not be included among the nine upper division courses. One or two of the nine courses may be selected from Management 120A, 120B, 122, 127A, 130A, 130B. Transfer credit is subject to department approval;

consult an undergraduate counselor before enrolling in any courses for the major.

To graduate, students must have at least a 2.0 grade-point average in their upper division major courses, with grades of C– or better in Economics 101 and 102.

Major Fields

Economic theory (courses 101, 102, 106G, 106P, 107, 187); statistics, mathematical economics, and econometrics (courses 103, 141A, 142, 143, 145); economic development (courses 111, 112); international economics (courses 121, 122); public finance (courses 130, M134A, M135, M136); regional economics (course 137); labor economics (courses 150, 151); money and banking (courses 106F, 160, 161); government and industry (courses 106E, 106I, 170); economic institutions (courses 106H, 181A, 181B, 183).

Economics B.A./Applied Economics M.S. Dual Program

An intercampus dual degree program between UCLA and UC Santa Cruz allows students to obtain a B.A. in Economics from UCLA and an M.S. in Applied Economics from UC Santa Cruz in five years. Consult the economics undergraduate counselor for additional information.

Business Economics B.A.

The Business Economics B.A. program offers a major for students seeking a business orientation in their study of economics. It does not replicate the traditional undergraduate business school curriculum. Instead, it offers a more tightly focused curriculum that is guided by the rigorous logic and integrative perspective of economics. It is designed to prepare students for graduate education in business, economics, and law. The program requires students to include specific courses offered by the department and the John E. Anderson Graduate School of Management (see The Major).

Admission

Enrollment in the program is limited. Applications for admission are handled exclusively by the Department of Economics. To apply, students must have completed at least 72 quarter units (but no more than 137 quarter units), one 12-unit term in residence in regular session at UCLA, and all courses listed under Preparation for the Major. In addition, they must (1) be enrolled in UCLA regular session at the time of application, (2) have a 2.0 (C) minimum grade in each preparation course, (3) have a minimum 3.0 (B) overall average in all preparation courses except the writing course, and (4) have a minimum 2.0 (C) grade-point average in their upper division courses taken for the major before applying (Economics 101 applies on the major preparation grade-point average).

The requisite grade-point averages plus completion of the preparation for the major courses do not guarantee admission to the program.

Admission is on a competitive basis, using the above qualifications as minimum standards for consideration.

Business Economics Premajor

While students are completing the preparation courses for the major, they may be classified as Business Economics premajors. (Transfer students who wish to enter UCLA as Business Economics premajors must meet the admission screening requirements. For information, contact the Office of Undergraduate Admissions and Relations with Schools.)

Preparation for the Major

Required: Economics 1, 2, 11, 41, 101; one Writing II course; Management 1A, 1B; Mathematics 31A, and 31B or 31E. Each course must be taken for a letter grade.

Repetition of more than one preparation course or of any preparation course more than once results in automatic denial of admission to the major.

Transfer Students

Transfer applicants to the Business Economics major with 90 or more units must complete the following introductory courses prior to admission to UCLA: one microeconomics course, one macroeconomics course, two calculus courses from the mathematics/physical sciences sequence, one English critical reading and writing course.

Transfer students are required to take Economics 41 at UCLA rather than prior to transfer.

Transfer credit for any of the above is subject to department approval; consult an undergraduate counselor before enrolling in any courses for the major.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Economics 102, 103, and at least two courses from the 106 series; three other upper division courses in economics in at least two different fields (former courses 100, 110, and 120 may not be included as electives); four upper division courses from Management 108, 120A, 120B, 122, 123, 124, 126, 127A, 127B, 130A, 130B, 140. Each upper division major course must be taken for a letter grade. Transfer credit for any of the major courses is subject to department approval. Consult an undergraduate counselor before enrolling in any courses for the major.

To graduate, students must have a minimum 2.0 grade-point average in their upper division major courses, with at least a C– in each course. (Economics 101 applies on the preparation for the major, therefore requiring a minimum grade of C.)

Economics/International Area Studies B.A.

The Undergraduate Council of the UCLA Academic Senate suspended admissions to the Economics/International Area Studies major effective Spring Quarter 2010. Continuing students who complete the premajor courses by the end of Fall Quarter 2010 will be admitted to the major. Students currently in the major and transfer students admitted to the premajor for Fall Quarter 2010 are not affected by the admissions suspension.

The Economics/International Area Studies B.A. program is for students who wish to attain specialized knowledge of a particular geographical area in addition to the economics analysis provided by the major. It should be useful to those who plan careers in international business or government service. The department encourages participation in the University of California Education Abroad Program or other recognized international study programs. Experience in foreign firms or institutions would be an advantage but yields no academic unit credit toward the major.

Admission

Qualified students must apply for the major through the undergraduate counselors office in 2263 Bunche Hall. To apply, students must have completed at least 72 quarter units (but no more than 137 units), one 12-unit term in residence in regular session at UCLA, and all courses listed under Preparation for the Major (except for the second year of foreign language). In addition, they must be enrolled in UCLA regular session at the time of application. Each course must be completed for a letter grade. A minimum 2.0 (C) grade is required in each premajor course, with a combined 3.0 GPA in the economics and mathematics courses. Students must also have a 2.0 (C) grade-point average in their upper division courses taken for the major before applying. Language course preparation need not be completed at the time of admission but must be completed before preparing the research paper required in Economics 199B. The program as a whole must be approved by an Economics Department counselor before students are admitted to the major.

Economics/International Area Studies Premajor

While students are completing the preparation courses for the major, they may be classified as Economics/International Area Studies premajors.

Preparation for the Major

Required: Economics 1, 2, 11, 41, 101, 102; Mathematics 31A, and 31B or 31E. Students also must complete at least the first year (or equivalent) of the two required years of a modern foreign language which is spoken in the geographical area of their major concentration.

Repetition of more than one preparation course or of any preparation course more than once

results in automatic denial of admission to the major.

Transfer Students

Transfer applicants to the Economics/International Area Studies major with 90 or more units must complete the following introductory courses prior to admission to UCLA: one microeconomics course, one macroeconomics course, two calculus courses from the mathematics/physical sciences sequence, and one year of a modern foreign language related to the geographical concentration.

Transfer students are required to take Economics 41 at UCLA rather than prior to transfer.

Transfer credit for any of the above is subject to department approval; consult an undergraduate counselor before enrolling in any courses for the major.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: A total of 12 upper division courses selected from economics and the approved noneconomics courses listed below for the concentration. Eight economics courses are required, including Economics 103, 121, 122, 199B, and four economics courses from at least two different fields (selected from the major fields listed under the Economics major). Economics 101 and 102 (which are required for the premajor) cannot be used to satisfy this requirement; former courses 100, 110, and 120 may not be included as electives. The four remaining upper division courses are social sciences courses related to the concentration and must be selected from the approved courses listed below. Students are required to include selections from at least two different departments. Economics 199B must be completed in the last year before graduation and includes the preparation of a research paper on the economy of the country or region of the concentration. In addition, students must show two-year proficiency (or equivalent) in a modern foreign language related to their concentration. The noneconomics courses, the research paper, and the language learned must show consistency of purpose. Each major course must be taken for a letter grade.

One or two courses from Management 120A, 120B, 122, 127A, 130A, 130B may be substituted for one or two of the economics electives.

To graduate, students must achieve a minimum 2.0 grade-point average for both economics and noneconomics courses, with a grade of C– or better in each course.

Major Concentrations

When students declare the major, they must also select a concentration that includes a geographical area where the foreign language they have taken is spoken. They must complete four of the approved noneconomics courses listed, including courses from at least two different departments. Students may not use courses that

are not on their concentration list unless they have petitioned and received approval in advance. Consult an undergraduate counselor in 2263 Bunche Hall about the petition process.

East Asia

Languages: Chinese, Japanese, Korean

Approved Noneconomics Courses: Anthropology 175S, 175T, Chinese C175, Geography 186, History 169A, 169B, 170A, 170B, 170D, 172A, 172B, 172C, 173A, 176A, 176B, Japanese 175, Korean 175, 180A, 180B, 180C, Political Science 135, 136, 159A, 159B, 160, Sociology M153, 179

Europe

Languages: French, German, Italian, Portuguese, Spanish

Approved Noneconomics Courses: French 109, 130, Geography 183, German 100, 101, 102, History 114A, 120A, 120B, 121A, 121C through 121F, 122A through 122F, 124A, 124B, 124C, 125A, 125B, 125C, 126, 128A, 128B, 129A, 129B, 130A, 130B, 136A, 136B, 136C, 137A, 137B, Italian 102B, Political Science 127A, 152A, 152B, 152C, 153A, 153B, 155, 156B

Latin America

Languages: Portuguese, Spanish

Approved Noneconomics Courses: Geography 181, 182A, 182B, History 157A, 159, 160B, 162A, 162B, 162C, Political Science 124C, 131, 154A, 154B, Sociology 186

Middle East

Languages: Arabic, Hebrew, Persian, Turkish

Approved Noneconomics Courses: Geography 187, History 105C, 108B, Jewish Studies 142, Political Science 132A, 157, Sociology 187, Turkic Languages 180

Former Soviet Union

Languages: Armenian, Russian

Approved Noneconomics Courses: History 107A, 107B, 107C, 107E, 120A, 120B, M127A through 127D, Political Science 128A, 128B, 156A, Turkic Languages 180

Individual Concentration

Language, geographical area, and noneconomics courses to be approved in advance by the economics/international area studies faculty adviser

Mathematics/Economics B.S.

See the Mathematics/Economics listing for a description of the major.

Honors Program

The departmental honors program is open to majors in Economics, Business Economics, and Economics/International Area Studies who have a cumulative grade-point average of at least 3.5 in the major and in all courses taken at UCLA prior to application.

To qualify for departmental honors at graduation, students must (1) select at least seven of the required upper division economics courses

from the approved list designated for departmental honors, (2) complete a two-term senior thesis acceptable to the departmental honors committee in Economics 198A and 198B, and (3) complete the major requirements with at least a 3.5 grade-point average in the economics courses. Highest honors are awarded at the discretion of the departmental honors committee based on grade-point average and quality of the senior thesis.

Economics 198A and 198B, the courses required for thesis preparation, may be counted as upper division courses toward the field in which the thesis is written (for purposes of satisfying the requirements for the major). Further information and application forms are available from an undergraduate counselor in 2263 Bunche Hall.

Computing Specialization

The specialization in Computing is not a major, but a supplement to the three departmental majors. It provides an extensive education in elementary computer science and an introduction to its applications in economics.

Majors in Economics, Economics/International Area Studies, and Business Economics may select a specialization in Computing by (1) satisfying all the requirements for a bachelor's degree in the specified major and (2) completing Mathematics 61, Program in Computing 10A, 10B, two courses from Program in Computing 10C, 15, 20A, 20B, 30, 40A, 60, and at least two courses from Economics 103, 106P, 141A, 143, 151, 199A, with a minimum grade of C– in each course and a combined grade-point average of at least 2.0. Students must petition for admission to this program in the undergraduate counselors office, 2263 Bunche Hall, and are advised to do so after they complete Program in Computing 10B and are officially admitted to one of the above majors. Students graduate with a bachelor's degree in their major and a specialization in Computing.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Economics offers Master of Arts (M.A.), Candidate in Philosophy (C.Phil.), and Doctor of Philosophy (Ph.D.) degrees in Economics.

Economics

Lower Division Courses

1. Principles of Economics. (4) Lecture, three hours; discussion, one hour. Not open to students with credit for former course 100. Introduction to principles of economic analysis, economic institutions,

and issues of economic policy. Emphasis on allocation of resources and distribution of income through price system. P/NP or letter grading.

2. Principles of Economics. (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 1. Not open to students with credit for former course 100. Introduction to principles of economic analysis, economic institutions, and issues of economic policy. Emphasis on aggregative economics, including national income, monetary and fiscal policy, and international trade. P/NP or letter grading.

5. Introductory Economics. (4) Lecture, three hours. Not open to students with credit for course 1, 2, or former course 100. Principles of economics as tools of analysis. Presentation of set of concepts with which to analyze wide range of social problems that economic theory illuminates. May not be used to fulfill entrance requirements for any Economics Department major. P/NP or letter grading.

11. Microeconomic Theory. (4) Lecture, three hours; discussion, one hour. Enforced requisites: courses 1, 2, one course from Mathematics 31B, 31BH, 31E, 32A. Laws of demand, supply, returns, and costs; price and output determination in different market situations. P/NP or letter grading.

41. Statistics for Economists. (4) Lecture, three hours; discussion, one hour. Enforced requisites: Mathematics 31A, 31B. Not open to students with credit for Statistics 11. Introduction to probability and statistics for economists, with emphasis on rigorous arguments. Letter grading.

Upper Division Courses

101. Microeconomic Theory. (4) Lecture, three hours; discussion, one hour. Requisite: course 11. Theory of factor pricing and income distribution; general equilibrium; implications of pricing process for optimum allocation of resources; interest and capital. P/NP or letter grading.

102. Macroeconomic Theory. (4) Lecture, three hours; discussion, one hour. Requisite: course 101. Theory of income, employment, and price level. Analysis of secular growth and business fluctuations; introduction to monetary and fiscal policy. P/NP or letter grading.

103. Introduction to Econometrics. (5) Lecture, three hours; discussion, one hour. Requisites: courses 11, and 41 or Statistics 11 or 100A. Introduction to theory and practice of econometrics, with goal to make students effective consumers and producers of empirical research in economics. Emphasis on intuitive understanding rather than on rigorous arguments; concepts illustrated with applications in economics. P/NP or letter grading.

103L. Econometrics Laboratory. (1) Laboratory, one hour. Requisites: courses 11, and 41 or Statistics 11 or 100A. Corequisite: course 103. Econometric analysis of case-based studies. Hands-on data collection and problem solving. Use of econometric software. P/NP or letter grading.

106E. Economics of Entrepreneurship. (4) Lecture, three hours. Requisite: course 101. Enrollment priority to Business Economics majors. Application of economic theory to practice of managing new businesses—combining elements of strategy, marketing, and entrepreneurial finance courses. Examination of both strategic decisions of entrepreneurs (pricing, advertising, deterring entry) and more practical issues (funding, business plans, patents). Letter grading.

106F. Finance. (4) Lecture, three hours. Requisite: course 102. Enrollment priority to Business Economics majors. Introduction to principles of asset valuation and role of financial markets in market economy. Basic topics include time value of money, discounted cash flow analysis, CAPM model, and applications to public policy. Letter grading.

106G. Introduction to Game Theory. (4) Lecture, three hours; discussion, one to two hours (when scheduled). Requisite: course 101. Enrollment priority to Business Economics majors. Introduction to basic ideas of game theory and strategic thinking. Discussion of ideas such as dominance, backward induction,

Nash equilibrium, commitment, credibility, asymmetric information, and signaling, with application to examples from economics, politics, business, and other real-life situations. Letter grading.

106H. Enterprise, Technology, and Entrepreneurship in American Economic History. (4) Lecture, three hours. Requisite: course 101. Enrollment priority to Business Economics majors. Study of role of innovation in history of American enterprise. Examination of specific episodes of salient entrepreneurial innovation, as well as general theoretical and empirical treatments. Letter grading.

106I. Organization of Firms. (4) Lecture, three hours. Requisites: courses 11, 101. Enrollment priority to Business Economics majors. Role of firms in traditional economic theory and modern developments in theory of firms. Functions of ownership and management in face of risk and opportunism. Internal organization of firms. Problem of separation of ownership from control in modern corporations. Determinants of firm size, vertical integration, and degree of specialization of activities of firms. Decision making within firms in democratic setting. P/NP or letter grading.

106P. Pricing and Strategy. (4) Lecture, three hours. Requisite: course 101. Enrollment priority to Business Economics majors. Advanced pricing topics typically include linear programming and shadow pricing, peak load pricing, two-part pricing, strategic pricing, and auctions and bidding. Letter grading.

106T. Economics of Technology and E-Commerce. (4) Lecture, three hours. Requisites: courses 11, 101. Use of rigorous economic tools to analyze world of technology and e-commerce. Examination of economic theory, empirical analysis, and case studies to study variety of new markets. Topics include bidding in online auctions, two-sided markets, matching markets, and reputation mechanisms. Written case on one particular firm and presentation required. P/NP or letter grading.

106V. Investments. (4) Lecture, three hours. Requisite: course 102. Recommended: course 106F. Enrollment priority to Business Economics majors. Introduction to principles investment and portfolio theory. Topics include optimal portfolio construction, fixed income analysis, option pricing theory, and active portfolio management. P/NP or letter grading.

107. History of Economic Theory. (4) Lecture, three hours. Requisite: course 1 or 100. Survey of economic analysis from Grecian antiquity to early 20th century, concentrating on 18th and 19th centuries; special attention to selected writers, including Aristotle, mercantilists, Physiocrats, Hume, Smith, Malthus, Ricardo, Marx, marginalists, and Marshall. P/NP or letter grading.

111. Theories of Economic Growth and Development. (4) Lecture, three hours. Requisite: course 11. Growth models, theory of production under constraints, relative factor prices and their impact on choice of technology, investment criteria, role of market, economic planning in less developed areas. P/NP or letter grading.

112. Policies for Economic Development. (4) Lecture, three hours. Requisite: course 102 or 111. Suggested strategies for economic development: inflation, balanced growth, industry versus agriculture, import substitution, export-oriented expansion, foreign aid, and others. Selected case studies. P/NP or letter grading.

121. International Trade Theory. (4) Lecture, three hours; discussion, one hour. Requisite: course 101. Not open to students with credit for former course 120. Theory of international trade: bases, direction, terms, volume, and gains of trade. Effects of tariffs, quantitative restrictions, and international integration. Effects of free and restricted trade on economic welfare and political stability. P/NP or letter grading.

122. International Finance. (4) Lecture, three hours; discussion, one hour. Requisite: course 102. Not open to students with credit for former course 120. Emphasis on interpretation of balance of payments and adjustment to national and international equilibria through changes in price levels, exchange rates, and national income. Other topics include making interna-

tional payments, determination of exchange rates under various monetary standards, capital movements, exchange controls, and international monetary organization. P/NP or letter grading.

C126A-C126B-C126C. Seminars: International Economics. (4-4-4) Seminar, three hours. Requisites: courses 11, 101, 102. Limited to seniors. Overview of most current developments in international economics for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with courses C285A-C285B-C285C. P/NP or letter grading.

130. Public Economics. (4) Lecture, three hours. Requisites: courses 11, 101. Role of government in market economy. Alternative justifications for government intervention. Principles and effects of spending programs (especially social insurance and health), taxation, deficit financing, and federal credit programs. Taxation in open economy. Properties of public choice mechanisms. P/NP or letter grading.

131. Economics of Health and Healthcare. (4) Lecture, three hours. Requisites: courses 11, 101, 103. Economic analysis of health and healthcare. Presentation of several detailed economic models, including models of addiction, demand for healthcare, demand for insurance, nonprofit behavior, and other models. Evaluation of quantitative information from course readings and development of better understanding of econometric concepts and results. P/NP or letter grading.

M134A. Environmental Economics. (4) (Formerly numbered 134A.) (Same as Environment M134.) Lecture, three hours. Requisites: course 41 or Statistics 12 or 13, and course 101 (may be waived with consent of instructor). Introduction to major ideas in natural resources and environmental economics, with emphasis on designing incentives to protect environment. Highlights important role of using empirical data to test hypotheses about pollution's causes and consequences. P/NP or letter grading.

M135. Economic Models of Public Choice. (4) (Same as Political Science M105.) Lecture, three or four hours; discussion, one hour (when scheduled). Preparation: any lower division political science course. Enforced requisite: course 11. Designed for juniors/seniors. Analysis of methods and consequences of arriving at collective decisions through political mechanisms. Topics include free-rider problem, voting and majority choice, demand revelation, and political bargaining. P/NP or letter grading.

M136. Economic Models of Political Conflict and Conflict Resolution. (4) (Same as Political Science M106.) Seminar, three hours; discussion, one hour. Enforced requisite: course 11. Prior political science course desirable but not essential. Designed for juniors/seniors. Biological, cultural, and organizational sources of political conflict. Role of threats, promises, commitments. Models of onset and termination of conflict. Conduct of war: strategy and tactics. P/NP or letter grading.

137. Introduction to Urban and Regional Economics. (4) Lecture, three hours. Requisite: course 11. Survey of broad range of policy and theoretical issues that are raised when economic analysis is applied in urban setting. Topics include urbanization and urban growth, housing markets, location decisions of households and firms, transportation, urban labor markets, and local public sector. P/NP or letter grading.

140. Inequality: Mathematical and Econometric Approach. (4) (Formerly numbered 145A.) Lecture, three hours. Requisites: courses 101, 103, and Mathematics 33A or 115A. In past decade economists have learned remarkable amount about how society works. Increased understanding through application of distinctively economic methods of research—explicit mathematical models and eclectic statistical techniques—to topics like healthcare, crime, education, and immigration, leading to increased understanding of inequality, how to measure it, how unequal-

ity has increased in U.S., how America differs from other rich countries, and what causes inequality. Study of this work, with focus on two important influences on inequality—education and health. P/NP or letter grading.

141A. Mathematical Finance A. (5) Lecture, three hours; computer laboratory, one hour. Requisites: course 11, Mathematics 33A, either Statistics 100A or Mathematics 170A. Economics of financial markets, competitive equilibrium with time and uncertainty, one period security market model, market completeness. P/NP or letter grading.

142. Probabilistic Microeconomics. (4) Lecture, three hours. Requisite: course 101. Combination of basic probability introduced in Statistics 11 with microeconomic models presented in courses 11 and 101 in order to explain phenomena such as insurance, job search, and stock market behavior. Optimal production and consumption under uncertainty. Review of probability and introduction to alternative measures of risk and risk aversion. P/NP or letter grading.

143. Advanced Econometrics. (4) Lecture, three hours; discussion, one hour; laboratory, one hour. Requisite: course 103. Not open for credit to students with credit for former course 147A or 147B. Heteroskedasticity, limited dependent variable, panel data, time-series. P/NP or letter grading.

145. Topics in Mathematical Economics. (4) Lecture, three hours. Requisite: course 101. Possible topics include game theory; competitive equilibrium analysis; examination of market failure and role for market intervention. P/NP or letter grading.

C146A-C146B-C146C. Seminars: Asset Pricing. (4-4-4) Seminar, three hours. Requisites: courses 11, 101, 102. Limited to seniors. Overview of most current developments in asset pricing theory for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with courses C296A-C296B-C296C. P/NP or letter grading.

150. Labor Economics. (4) Lecture, three hours. Requisites: courses 11, 101. Supply and demand for labor. Analysis of government, union, and other constraints on competitive system of wage determination. Wage level and structure. Wages and human capital theory. P/NP or letter grading.

151. Topics in Labor Economics. (4) Lecture, three hours. Requisite: course 101. Selected topics in labor theory; income distribution; business cycles and unemployment; investments in human capital and life cycles; migration; human fertility; marriage and divorce, etc. P/NP or letter grading.

C156A-C156B-C156C. Seminars: Labor Economics. (4-4-4) Seminar, three hours. Requisites: courses 11, 101, 102. Limited to seniors. Overview of most current developments in labor economics for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with courses C266A-C266B-C266C. P/NP or letter grading.

160. Money and Banking. (4) Lecture, three hours. Requisite: course 102. Principles of money and banking in U.S.; legal and institutional framework; money supply process; instruments, effects, and practice of monetary policy. P/NP or letter grading.

161. Monetary Theory. (4) Lecture, three hours. Requisites: courses 101, 160. Nature of money and monetary exchange; level and term structure of interest rates; level and growth rate of money; transmission of monetary shocks; theory and practice of monetary policy. P/NP or letter grading.

C166A-C166B-C166C. Seminars: Monetary Economics/Macroeconomics. (4-4-4) Seminar, three hours. Requisite: course 102. Limited to seniors. Overview of most current developments in monetary economics and macroeconomics for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with courses C226A-C226B-C226C. P/NP or letter grading.

167A. Advanced Topics in Macroeconomics from Malthusian Stagnation to Modern Growth. (4) Lecture, three hours. Requisite: course 102. Use of neo-classical growth model to address various issues, with emphasis on quantitative analysis. Development of economic theory and application to study of long-run growth, industrial revolution, and Great Depression. P/NP or letter grading.

170. Industrial Organization: Theory and Tactics. (4) Lecture, three hours. Requisite: course 101. Monopoly, collusion and competition, strategic firm behavior, nonprice competition with and without entry, pricing practices, antitrust. Comparison of economic and legal treatments of competitive process. Monopoly competition, and collusion as economic theory, as antitrust doctrine, and as fact. Source of monopoly. Predatory behavior. Misleading practices in theory and policy. General problem of relationship between private rights of action and competitive entry. P/NP or letter grading.

C176A-C176B-C176C. Seminars: Industrial Organization. (4-4-4) Seminar, three hours. Requisites: courses 11, 101, 102. Limited to seniors. Overview of most current developments in industrial organization for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with courses C276A-C276B-C276C. P/NP or letter grading.

181A. Development of Economic Institutions in Western Europe. (4) Lecture, three hours. Requisite: course 11. European economic history, 900 to 1700. Custom, command, and market modes of organization. Evolution of property rights, contract forms, and monetary arrangements. Decline of feudal institutions, especially serfdom. Open field village and enclosures. Crafts manufacturing and guild organization. Development of banking. Public finances and role of government. P/NP or letter grading.

181B. Development of Economic Institutions in Western Europe. (4) Lecture, three hours. Requisite: course 11. European economic history, 1700 to 1914. Industrial revolution in Britain and its spread to continent. Rise of factories, industrial firms, and unions. Changes in standard of living and demographic consequences. Imperial expansion and decline of Britain. Worldwide diffusion of economic growth and Gerschenkron hypothesis. P/NP or letter grading.

183. Development of Economic Institutions in U.S. (4) Lecture, three hours. Requisites: courses 101, 102, 103. Study of changing economic conditions in U.S. from Colonial times to early 20th century and effects of these changes on American society. P/NP or letter grading.

C186A-C186B-C186C. Seminars: Economic History. (4-4-4) Seminar, three hours. Limited to seniors. Overview of most current developments in economic history for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with courses C246A-C246B-C246C. P/NP or letter grading.

187. Upper Division Research Seminar: Applications of Economic Theory. (4) Seminar, three hours. Requisites: courses 11, 101. Limited enrollment seminars in which students usually write research paper on topic selected in consultation with instructor. P/NP or letter grading.

188. Career Development. (1) Lecture, one hour. Enrollment priority to departmental majors. Designed to provide Business Economics majors with key knowledge and practical skills used in real world that compliment traditional academics to maximize interview, communication, and presentation skills and strengthen resumé building. Coverage of career paths in business profession in various aspects to broaden students' knowledge of career opportunities. Review of current business environment, financial markets, economy, unemployment, banking crises, market updates, and all related business topics. P/NP grading.

188B. Economics in Practice. (4) Seminar, three hours. Enforced requisites: courses 11, 101, 102. Students, in groups of four, address three small problems and one large and more complex problem. Discussion of student-proposed solutions to problems in their groups, with small-group discussions to student presentations of results in class. Detailed coaching and feedback by M.B.A. students on student analysis and presentations. Final written and oral presentations required. Letter grading.

195A-195B. Community or Corporate Internships in Economics I, II. (2-4) Tutorial, to be arranged. Requisites: courses 11, 101. Limited to junior/senior Economics, Business Economics, Economics/International Area Studies, and Mathematics/Economics majors. Internship to be supervised by Center for Community Learning and Economics Department. Further supervision to be provided by business or entity for which student is doing internship. Students meet on regular basis with instructor and provide periodic reports of their experience. May not be applied toward major requirements. Only 8 units from courses 195A and 195B may be applied toward undergraduate degree. Individual contract with supervising faculty member required. P/NP grading.

198A. Honors Research in Economics I. (4) Tutorial, three hours. Requisites: courses 11, 101, 102. Limited to senior departmental honors program students. First term of two-term sequence in which students develop honors thesis or comprehensive research project under direct supervision of faculty member. Individual contract required. In Progress grading (credit to be given only on completion of course 198B).

198B. Honors Research in Economics II. (4) Tutorial, three hours. Requisite: course 198A. Limited to senior departmental honors program students. Second term of two-term sequence in which students complete honors thesis or comprehensive research project under direct supervision of faculty member. Individual contract required. Letter grading.

199A. Directed Research in Economics. (4) Tutorial, three hours. Requisites: courses 11, 101, 102. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated twice but may be applied only once toward major requirements. Individual contract required. P/NP or letter grading.

199B. Directed Research in Economics/International Area Studies. (4) Tutorial, four hours. Requisites: courses 103, and 121 or 122. Limited to senior Economics/International Area Studies majors. Students prepare research papers under guidance of faculty mentor on economy of country or region of specialization. May be repeated for credit. Individual contract required. Letter grading.

Graduate Courses

Foundations of Economics

200. Mathematical Methods in Economics. (4) Lecture, three hours. Should be taken prior to enrollment in course 201A. Examination of mathematical methods used in graduate-level courses in microeco-

nomics, macroeconomics, and quantitative methods. Topics include real analysis, linear algebra and matrices, calculus of many variables, static optimization, convex analysis, and dynamics and dynamic optimization. S/U grading.

200B. Mathematical Methods in Economics II. (4) Lecture, three hours; laboratory, two hours. Should be taken prior to or concurrent with course 201B. Linear algebra and its application to linear difference equations. Basic real analysis, normed vector space/Banach space, Hahn/Banach theorem, Schauder fixed point theorem, and theory of correspondences. S/U grading.

201A-201B-201C. Microeconomics. (4-4-4) Lecture, three hours. S/U or letter grading:

201A. Theory of Firm and Consumer. (4) Lecture, three hours. Two input/two output model. Walrasian equilibrium and Pareto efficiency. Choice over time—consumer savings and firm investment decisions. Choice under uncertainty—state claims model, asset pricing. S/U or letter grading.

201B. Basic Concepts and Techniques of Noncooperative Game Theory and Information Economics. (4) Lecture, three hours. Nash equilibrium and subgame perfection. Games with incomplete information. Models of strategic market behavior. Screening and signaling. Bargaining models. Theory of firm. S/U or letter grading.

201C. General Equilibrium and Welfare Economics. (4) Lecture, three hours. Meaning of competition in general equilibrium. Decentralization and appropriation roles of prices. Increasing returns. Public goods. Pecuniary and nonpecuniary externalities. Mechanism design. S/U or letter grading.

202A-202B-202C. Macroeconomics. (4-4-4) Lecture, three hours. S/U or letter grading:

202A. Dynamics and Growth Theory. (4) Lecture, three hours. Essential techniques and concepts from dynamical mathematics and neoclassical growth theory. Linear and nonlinear dynamical systems. Dynamic programming and control theory. Stochastic dynamics. Determinacy of equilibrium. Descriptive, optimal, and overlapping generations models of accumulation. Stochastic growth theory. Increasing returns and applications to economic development. S/U or letter grading.

202B. Business Cycles. (4) Lecture, three hours. Survey of representative agent and complete market models of short-run fluctuations. Facts about fluctuations and long-term growth. Real business cycle theory. Calibrating and simulating dynamic models. Asset prices, money, and inflation. Taxation of factor incomes. Cyclical aspects of employment. S/U or letter grading.

202C. Topics in Macroeconomics. (4) Lecture, three hours. Heterogeneous-agent models of endogenous fluctuations and growth. General equilibrium techniques in macroeconomics. Overlapping fluctuations model with national debt. Fiscal policy. Externalities, indeterminacy, and growth. Expectations and business cycles. Money and monetary policy. Historical overview of mainstream macroeconomics. Wicksell and Keynes. Monetarist controversy. New classical and new Keynesian macroeconomics. S/U or letter grading.

203A. Probability and Statistics for Econometrics. (4) Lecture, three hours. Provides statistical tools necessary to understand econometric techniques. Random variables, distribution and density functions, sampling, estimators, estimation techniques, hypothesis testing, and statistical inference. Use of economic problems and examples. S/U or letter grading.

203B. Introduction to Econometrics: Single Equation Models. (4) Lecture, three hours. Estimation of basic linear regression model, testing hypotheses, generalized least squares, serial correlation, heteroskedasticity, multicollinearity, error-in-variables, distributed lags, qualitative dependent variables, and forecasting. S/U or letter grading.

203C. Introduction to Econometrics: Systems Models. (4) Lecture, three hours. Multivariate regression, simultaneous equation estimation, identification, and latent variables. S/U or letter grading.

204A-204Z. Applications of Economic Theory. (4 each) Lecture, three hours. S/U or letter grading:

204A-204B-204C. California Population Research Topical Seminar Series. (4-4-4) Seminar, three hours. Examination of issues such as demography, health, aging, labor, and broad array of topics concerned with effects of economic, social, and political transformations on human behavior both in U.S. and abroad. Each course may be taken independently for credit. S/U grading.

M204L-M204M-M204N. Seminars: Pharmaceutical Economics and Policy. (1-1-2) (Same as Health Services M204A-M204B-M204C.) Seminar, three hours every other week for three terms. Requisites: courses 201A, 201B, 201C, Health Services M236. Limited to graduate public health and economics students. Various topics in economics of pharmaceutical industry, including rates of innovation, drug regulation, and economic impact of pharmaceuticals. In Progress (M204L, M204M) and S/U or letter (M204N) grading.

204R. (4) Lecture, three hours. Preparation: completion of first-year microeconomics and graduate econometrics courses. In past decade economists have learned remarkable amount about how society works. Increased understanding has come about through application of distinctively economic methods of research—explicit mathematical models and eclectic statistical techniques—to topics such as healthcare, crime, education, and immigration. Taken together this work has led to increased understanding of inequality, how to measure it, how inequality has increased in U.S., how America differs from other rich countries and, most important, what causes inequality. Study of this work, with focus on two important influences on inequality—education and health—which are two areas in which knowledge is accumulating most rapidly. S/U grading.

205. Economic Modeling. (4) Lecture, three hours. Development of modeling skills by considering sequence of economic issues (e.g., peak load pricing, regulation, monopoly, capital asset pricing, Pareto efficiency). Emphasis on multivariate constrained optimization. S/U or letter grading.

207. History of Economic Thought. (4) Lecture, three hours. Topics from classical economics, including work of Smith, Ricardo, and Mill, and developments from 1870s, including contributions of major figures of marginalist revolution, socialist controversy, and history of welfare economics. S/U or letter grading.

M208. Introduction to Demographic Methods. (4) (Same as Biostatistics M208, Community Health Sciences M208, and Sociology M213A.) Lecture, four hours. Preparation: one introductory statistics course. Introduction to methods of demographic analysis. Topics include demographic rates, standardization, decomposition of differences, life tables, survival analysis, cohort analysis, birth interval analysis, models of population growth, stable populations, population projection, and demographic data sources. Letter grading.

Economic Theory

211A-211B. Economics of Uncertainty, Information, and Games. (4-4) Lecture, three hours. Preparation: introductory probability. Requisite: course 201C. Theory of individual decision making under uncertainty, applied to topics such as asset pricing models, adverse selection, moral hazard, bargaining, signaling, auctions, and search. S/U or letter grading.

212A-212Z. Topics in Advanced Theory. (4 each) Lecture, three hours. Current research in microeconomic theory. Content varies. Courses in this sequence not ordinarily given every year. May be repeated for credit. S/U or letter grading:

212A. Search Theory. (4) Lecture, three hours. Preparation: calculus, introductory probability. Price searching, queueing, Brownian motion, martingales, and applications to theory of firm. May be repeated for credit. S/U or letter grading.

212B. Applied Game Theory. (4) Lecture, three hours. Preparation: calculus, introductory probability. Use of theory of Bayesian games to study bargaining, monetary theory, and oligopoly. Use of theory of mecha-

nisms to study auction design and imperfectly competitive markets. May be repeated for credit. S/U or letter grading.

213A-213B. General Equilibrium and Game Theory. (4-4) Lecture, three hours. Requisite: course 201C. Selected advanced theoretical topics of current interest and introduction to modern mathematical economics, including general equilibrium theory and game theory. S/U or letter grading.

214A-214Z. Topics in Mathematical Economics. (4 each) Lecture, three hours. Requisite: course 213B. Current research in mathematical economics. Content varies. Ordinarily only two courses in this sequence given every year. May be repeated for credit. S/U or letter grading:

214A. General Equilibrium Theory. (4) Lecture, three hours. Requisite: course 201C. Core convergence theorem, cooperative and noncooperative approach to competitive equilibrium theory, perfectly competitive equilibria, no-surplus condition, and applications to mechanism theory and incomplete market models. May be repeated for credit. S/U or letter grading.

M215. Topics in Applied Game Theory. (4) (Same as Political Science M208B.) Lecture, three hours. Preparation: calculus or introductory probability. Designed for graduate economics and political science students. Survey and applications of major solution concepts to models of bargaining, oligopoly, cost allocation, and voting power. S/U or letter grading.

218A-218B-218C. Proseminars: Economic Theory. (4-4-4) Seminar, three hours. Quarterly seminars for predissertation and dissertation writers. Discussion of advanced topics and recent developments in game theory, information and uncertainty, and general equilibrium theory. Presentation of recent papers published and unpublished in economic theory as well as research of instructor and students. In-class presentation expected. S/U grading.

219A-219B-219C. Workshops: Economic Theory and Mathematical Economics. (4-4-4) Lecture, three hours. Workshops for predissertation and dissertation writers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, advanced graduate students. Research paper required. S/U grading.

Also see Management 200 (game theory and information economics), 203A (decision theory), 203B (economics of information)

Monetary Economics

221A-221D. Monetary Economics I to IV. (4 each) Lecture, three hours. S/U or letter grading:

221A. Monetary Economics I. (4) Lecture, three hours. Requisites: courses 202A, 202B, 202C. Dynamic methods in business cycles and economic growth. Multiperiod life-cycle models. Sustainable public deficits. Money and inflationary finance. Human capital. Endogenous fluctuations and regime switching. Econometrics of multiple equilibrium models. Political economy of government deficits and inflation. S/U or letter grading.

221B. Monetary Economics II. (4) Lecture, three hours. Emphasis on theoretical, historical, and policy aspects of monetary economics. Financial intermediation, bank panics, asset price volatility, game theoretic models of policy, inflation, implication of monopolistic competition, search and coordination failures, central bank operations, and evolution of monetary institutions. S/U or letter grading.

221C. Monetary Economics III. (4) Lecture, three hours. Requisites: courses 202A, 202B, 202C. Emphasis on quantitative dynamic models useful in study of equilibrium business cycles and public finance. Recursive competitive equilibria in representative agent overlapping-generation models, including models with money, taxes, liquidity constraints, and other distortions. S/U or letter grading.

221D. Monetary Economics IV. (4) Lecture, three hours. Requisites: courses 202A, 202B, 202C. Emphasis on applied macroeconomics, with topic change each year. Students select one particular data

set to study. Each week class studies article from recent work in applied macroeconomics or applied econometrics that teaches one technique or suggests one theoretical restriction on data. Subgroups of students report back to class using technique on their selected data set. S/U or letter grading.

222B-222Z. Topics in Monetary Economics. (4 each) Lecture, three hours. Current research in monetary economics. Content varies. May be repeated for credit. S/U or letter grading.

C226A-C226B-C226C. Seminars: Monetary Economics/Macroeconomics. (4-4-4) Seminar, three hours. Designed for predissertation and dissertation writers. Overview of most current developments in monetary economics and macroeconomics for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with courses C166A-C166B-C166C. S/U (C226B) and S/U or letter (C226A, C226C) grading.

228A-228B-228C. Proseminars: Monetary Economics. (4-4-4) Seminar, three hours. Workshops for predissertation and dissertation writers. Literature surveys or research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, advanced graduate students. Research paper or presentation required. S/U grading.

229A-229B-229C. Workshops: Monetary Economics. (4-4-4) Lecture, three hours. Workshops for predissertation and dissertation writers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, advanced graduate students. Research paper required. S/U grading.

Also see Management 239A, 239B, 239C (Ph.D. sequence in finance), 239D (advanced topics in finance), 239X, 239Y, 239Z (finance workshops)

Econometrics

231A. Econometrics: Single Equation Models. (4) Lecture, three hours. Linear regression model, specification error, functional form, autocorrelation, nonlinear estimation, distributed lags, nonnormality, univariate time series, qualitative dependent variables, aggregation, structural change, and errors-in-variables. S/U or letter grading.

231B. System Models. (4) Lecture, three hours. Multivariate regression, errors-in-variables, simultaneous equations, identification, proxy variables, latent variables, factor analysis of panel data, asymptotic distribution theory. S/U or letter grading.

M232A-232Z. Topics in Econometrics. (4 each) Lecture, three hours. Requisites: courses 231A, 231B. Current research in econometrics. Content varies. Courses in this sequence not ordinarily given every year. May be repeated for credit. S/U or letter grading.

M232A. Bayesian Econometrics. (4) (Same as Political Science M208E.) Lecture, three hours. Requisites: courses 231A, 231B. Subjective probability, introduction to decision theory, Bayesian analysis of regression, sensitivity analysis, simplification of models, criticism. May be repeated for credit. S/U or letter grading.

232B. Time Series. (4) Lecture, three hours. Requisites: courses 231A, 231B. Stationary stochastic processes, Box/Jenkins methods, spectral analysis, forecasting, rational expectation models, analysis of macroeconomic data. May be repeated for credit. S/U or letter grading.

238A-238B-238C. Proseminars: Econometrics. (4-4-4) Seminar, three hours. Quarterly seminars for predissertation and dissertation writers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Research paper or presentation required. S/U grading.

239A-239B-239C. Workshops: Econometrics. (4-4-4) Lecture, three hours. Workshops for predissertation and dissertation writers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, advanced graduate students. Research paper required. S/U grading.

Economic History

241. Economic History of Western Europe. (4) Lecture, three hours. Designed for graduate students. Seminar on European economic history, with emphasis on evolution of institutions and growth. Serfdom, medieval agriculture and agricultural revolution, demographics, industrial revolution, imperial expansion, and decline of Britain. S/U or letter grading.

242. Economic History of U.S. (4) Lecture, three hours. Seminar on American economic history. Onset of industrialization, relative economic backwardness of South, slavery, technological change, rise in industrial concentration, women in labor force, development of financial markets. S/U or letter grading.

243A-243Z. Topics in Economic History. (4 each) Lecture, three hours. Current research in economic history. Content varies. May be repeated for credit. S/U or letter grading.

C246A-C246B-C246C. Seminars: Economic History. (4-4-4) Seminar, three hours. Designed for predissertation and dissertation writers. Overview of most current developments in economic history for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with courses C186A-C186B-C186C. S/U grading.

248A-248B-248C. Proseminars: Economic History. (4-4-4) Seminar, three hours. Quarterly seminars for predissertation and dissertation writers. Discussion of advanced topics and recent developments in economic history. Presentation of work-in-progress. Research paper required. S/U grading.

249A-249B-249C. Von Gremp Workshops: History of Entrepreneurship in U.S. Economy. (4-4-4) Lecture, three hours. Designed for graduate students. Workshops for advanced graduate students. Research in progress discussed by visiting experts, UCLA faculty members, graduate students. S/U grading.

Public Finance

251A. Theory and Policy of Taxation. (4) Lecture, three hours. Examination of influence of taxation on economic efficiency and incidence of taxation in first part of course. Topics include tax equivalences, Ramsey rules, and alternative forms of taxation. Special tax provisions, tax incentives, and progressivity in taxation in second part of course. S/U or letter grading.

251B. Cost-Benefit Analysis of Public Projects and Programs. (4) Lecture, three hours. Requisite: course 251A. Presentation of those aspects of applied capital theory that are relevant in decisions concerning investment projects in first part of course. Differences between social and private benefits and costs (shadow prices) for foreign exchange, capital, and labor, with applications to public investment decisions, in second part of course. S/U or letter grading.

252. Economics of Federalism. (4) Lecture, three hours. Theories of perfect games and social organization. Role of government, collective goods, collective defense, local public goods, spillovers, and intergovernmental relations. S/U or letter grading.

253A-253Z. Topics in Public Finance. (4 each) Lecture, three hours. Current research in public finance. Content varies. Topics include Social Security taxes and programs, unemployment insurance, public provision of medical care, theory of public goods, and theory of public choice. May be repeated for credit. S/U or letter grading.

254A-254B-254C. Workshops: Public Economics. (4-4-4) Lecture, three hours. Designed for graduate students. Workshops for advanced graduate students. Research in progress discussed by graduate students, UCLA faculty members, visiting experts. S/U grading.

Labor Economics

261A-261B. Labor Economics I, II. (4-4) Lecture, three hours. S/U or letter grading:

261A. Labor Economics I. (4) Lecture, three hours. Wage determination in competitive labor markets. Extension of wage determination to schooling and occupational choice, life-cycle earnings profiles, discrimination, minimum wage legislation, and unionism. Emphasis on empirical literature. S/U or letter grading.

261B. Labor Economics II. (4) Lecture, three hours. Requisite: course 261A. Models of life-cycle learning and work behavior, with particular emphasis on recent literature examining labor force behavior and experience of women. S/U or letter grading.

262A-262Z. Topics in Labor Economics. (4 each) Lecture, three hours. Current research in labor economics. Content varies. May be repeated for credit. S/U or letter grading:

262D. Development Economics. (4) Lecture, three hours. Preparation: completion of first-year graduate microeconomics and econometrics courses. Coverage of important key topics in microeconomics of development, such as health, education, risk coping, savings, credit, and household economics. Discussion of empirical methods. S/U or letter grading.

262F. Public Sector Microeconomics. (4) Lecture, three hours. Preparation: completion of first-year graduate microeconomics and econometrics courses. Coverage of topics related to tax incidence, dead-weight loss, public expenditure, income taxation and transfer programs, with emphasis on impacts of such programs on labor supply and savings, social security, unemployment insurance, and other insurance programs. S/U or letter grading.

C266A-C266B-C266C. Seminars: Labor Economics. (4-4-4) Seminar, three hours. Designed for predissertation and dissertation writers. Overview of most current developments in labor economics for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with courses C156A-C156B-C156C. S/U (C266B) and S/U or letter (C266A, C266C) grading.

268A-268B-268C. Proseminars: Labor and Population. (4-4-4) Seminar, three hours. Quarterly seminars for predissertation and dissertation writers working on empirical issues in areas of labor and population, broadly defined. Presentation of work-in-progress or background material for proposed thesis topics, to be discussed and criticized by faculty and fellow students. Presentation or research paper required. S/U grading.

269A-269B-269C. Workshops: Labor Economics. (4-4-4) Lecture, three hours. Workshops for predissertation and dissertation writers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, advanced graduate students. Research paper required. S/U grading.

Industrial Organization

271A-271B. Industrial Organization, Price Policies, and Regulation I, II. (4-4) Lecture, three hours. S/U or letter grading:

271A. Industrial Organization, Price Policies, and Regulation I. (4) Lecture, three hours. Major economic aspects of property rights system. Firm and market compared from perspective of alternative arrangements for allocating resources. Traditional problems of competition, monopoly, and industrial concentration. Brief analysis of those portions of antitrust policy bearing on industrial structure. S/U or letter grading.

271B. Industrial Organization, Price Policies, and Regulation II. (4) Lecture, three hours. Requisite: course 271A. Study of firm organization and pricing under conditions of less than perfect competition; information costs and advertising; economic and legal analysis of marketing practices such as discrimination, tie-in selling, resale price maintenance, exclusive dealing, and territorial arrangements. S/U or letter grading.

271C. Mathematical Theory in Industrial Organization. (4) Lecture, three hours. Requisites: courses 201A, 201B, 201C. Formal modeling of theory of industrial organization: principal-agent problem, entry deterrence, endogenous price discrimination, monopolistic competition, new approaches to rationality. S/U or letter grading.

272A-272Z. Topics in Industrial Organization. (4 each) Lecture, three hours. Current research in industrial organization. Content varies. May be repeated for credit. S/U or letter grading.

273A. Public Utility Regulation. (4) Lecture, three hours. Theory, practice, and consequences of regulation in electric power, gas, water, telecommunications, broadcasting, and other regulated industries; experiences of unregulated monopoly and public enterprises by way of contrast. S/U or letter grading.

C276A-C276B-C276C. Seminars: Industrial Organization. (4-4-4) Seminar, three hours. Designed for predissertation and dissertation writers. Overview of most current developments in industrial organization for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with courses C176A-C176B-C176C. S/U (C276B) and S/U or letter (C276A, C276C) grading.

278A-278B-278C. Proseminars: Industrial Organization and Regulation. (4-4-4) Seminar, three hours. Quarterly seminars for predissertation and dissertation writers to discuss advanced topics and recent developments in industrial organization and regulation. Presentation of work-in-progress for feedback from faculty and fellow students. Presentation or research paper required. S/U grading.

279A-279B-279C. Workshops: Business Organization. (4-4-4) Lecture, three hours. Workshops for predissertation and dissertation writers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, advanced graduate students. Research paper required. S/U grading.

Also see Management 262 (pricing policy)

International Economics

281A. International Trade Theory. (4) Lecture, three hours. Theoretical and empirical analysis of microeconomic relationships among countries. Determinants of commodity and factor flows, prices, and factor rewards. Effects of trade barriers. S/U or letter grading.

281B. International Finance. (4) Lecture, three hours. Theory and evidence on balance of payments, exchange rate determination, international transmission of inflation and business cycles, macroeconomic policy in open economies, alternative monetary systems. S/U or letter grading.

281C. International Economics. (4) Lecture, three hours. Theoretical and empirical analysis of interrelation between flows of capital, people, and goods. Applications to current policy. S/U or letter grading.

282A-282Z. Topics in International Economics. (4 each) Lecture, three hours. Current research in international economics. Content varies. May be repeated for credit. S/U or letter grading.

284. Soviet Economic Theory and Organization. (4) Lecture, three hours. Overall strategy of planning used by U.S.S.R. planners and specific planning methods, interpreted broadly to cover not only instructions and objectives but also institutional arrangements. Intended and unintended outcomes of methods. S/U or letter grading.

C285A-C285B-C285C. Seminars: International Economics. (4-4-4) Seminar, three hours. Designed for predissertation and dissertation writers. Overview of most current developments in international economics for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with courses C126A-C126B-C126C. S/U grading.

Development Economics

286A. Economic Development. (4) Lecture, three hours. Requisites: courses 201C, 202C. Study of theoretical and empirical problems related to developing countries. Emphasis on relation between international trade and economic development, dynamic aspects of commercial policies, inflation, stabilization, structural adjustment, growth and migration. S/U or letter grading.

286B. Cost-Benefit Analysis of Development Projects. (4) Lecture, three hours. Requisite: course 286A. Methodology for evaluating investment projects, with special attention to types of issues that arise in developing countries. Discussion of social versus private evaluation criteria; applications to highway, electricity, and irrigation projects. S/U or letter grading.

287A-287Z. Topics in Development Economics. (4 each) Lecture, three hours. Current research in development economics. Content varies. Courses in this sequence not ordinarily given every year. May be repeated for credit. S/U or letter grading.

287A. Economic Problems of Latin America. (4) Lecture, three hours. Economic history of Latin America. Great depression, import substitution and industrialization, inflation and growth, free market experiments, and economic integration. May be repeated for credit. S/U or letter grading.

287B. Economic Development in East Asia. (4) Lecture, three hours. Recent economic history of East Asia, focusing on postwar development of Japan, Korea, and China. Emphasis on role of international investment and trade, especially with U.S., in area's economic development. May be repeated for credit. S/U or letter grading.

287C. Topics in Economic Development. (4) Lecture, three hours. Designed for graduate students. Topics in monetary and exchange rate policy in developing countries. Students expected to develop analytical tools and underlying policy issues. May be repeated for credit. S/U or letter grading.

288A-288B-288C. Proseminars: International and Development Economics. (4-4-4) Seminar, three hours. Quarterly seminars for predissertation and dissertation writers on current issues in international trade and finance and development economics. Presentation of work-in-progress for feedback from faculty and other graduate students. Presentation or research paper required. S/U grading.

Urban Economics

291A. General Equilibrium and Finance. (4) Lecture, three hours. Designed for graduate students. Introduction to mathematical finance from general equilibrium viewpoint. CAPM and static equilibrium models. Intertemporal models in discrete and continuous time. Spanning, option prices, and derivatives. Martingales, random walks, and market efficiency. S/U or letter grading.

291B. Fundamentals and Bubbles in Asset Prices. (4) Lecture, three hours. Requisite: course 291A. Designed for graduate students. Applications of dynamic general equilibrium to asset pricing in economies with exchange and production. Basic empirical puzzles in U.S. and international asset prices, 1880 to 2000: excess volatility, equity premium and risk-free rate puzzle, predictability. Models of habit formation, asset price bubbles, and limited arbitrage asset pricing theories. Market imperfections and bounded rationality. S/U or letter grading.

291C. Asset Prices, Forecasting, and Learning. (4) Lecture, three hours. Requisite: course 291A. Designed for graduate students. Introduction to forecasting methods and applications to asset pricing. Signal-extraction under different uncertainty specifications. Kalman filtering and forecasting. Robust filtering and forecasting. Models of behavioral finance. Stylized facts on forecasts and asset pricing anomalies: short-term momentum and long-term reversals of returns. Option pricing anomalies. S/U or letter grading.

291D. Econometrics of Asset Prices. (4) Lecture, three hours. Requisite: course 291A. Designed for graduate students. Applications of time-series methods to analysis of asset prices: general method of moments, vector autoregressions, and maximum likelihood estimation. Restrictions imposed by no-arbitrage on time series of returns. Empirical implications of macroeconomic models for asset prices. Response of asset prices to shocks. Incomplete markets. S/U or letter grading.

293A-293Z. Topics in Urban Economics. (4 each) Lecture, three hours. Current research in urban and regional economics. Content varies. Serves as forum for presentation of papers on urban economics by students, UCLA faculty members, and visitors. May be repeated for credit. S/U or letter grading.

C296A-C296B-C296C. Seminars: Asset Pricing. (4-4-4) Seminar, three hours. Designed for predissertation and dissertation writers. Overview of most current developments in asset pricing theory for advanced undergraduate and graduate students. Introduction to graduate-level research in this field. Different topic each week, with presentation and discussion of new papers. Research in progress presented, discussed, and criticized by visiting experts, UCLA faculty members, and advanced graduate students. Concurrently scheduled with courses C146A-C146B-C146C. S/U (C296B) and S/U or letter (C296A, C296C) grading.

298A-298B-298C. Proseminars: Asset Pricing. (4-4-4) Seminar, three hours. Quarterly seminars for predissertation and dissertation writers on empirical issues in area of asset pricing, broadly defined. Presentation of work-in-progress or background material for proposed dissertation topics that are discussed and criticized by faculty members and fellow students. Presentation or research paper required. S/U grading.

Special Studies

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Teaching College Economics. (2) Seminar, one hour; laboratory, three hours. Designed for graduate students. Required of all new teaching assistants. Classroom practice in teaching, with individual and group instruction on related educational methods, materials, and evaluation. May be repeated for credit. S/U grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. Individual Study. (2 to 8) Tutorial, to be arranged. Directed individual study or research. S/U grading.

597. Individual Study: Graduate Examinations. (2 to 8) Tutorial, to be arranged. Directed individual study in preparation for M.A. comprehensive examination or Ph.D. qualifying examinations. S/U grading.

599. Individual Research: Ph.D. Dissertation. (2 to 8) Tutorial, to be arranged. Preparation: advancement to Ph.D. candidacy. Directed individual research in preparation of Ph.D. dissertation. S/U grading.

EDUCATION

Graduate School of Education and Information Studies

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Patricia M. McDonough, Ph.D., *Vice Chair*

Professors

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Alison L. Bailey, Ed.D.
Eva L. Baker, Ed.D.
James S. Catterall, Ph.D.
Mitchell J. Chang, Ph.D.
Sol Cohen, Ph.D.
Aimée Dorr, Ph.D., *Dean*
Frederick D. Erickson, Ph.D. (*George F. Kneller Professor of Education and Anthropology*)
Megan L. Franke, Ph.D.
Patricia C. Gándara, Ph.D.
Sandra H. Graham, Ph.D.
Sandra Harding, Ph.D.
Carollee Howes, Ph.D.
Sylvia Hurtado, Ph.D.
Connie L. Kasari, Ph.D.
Douglas M. Kellner, Ph.D. (*George F. Kneller Professor of Education and Philosophy*)
Marilyn L. Kourilsky, Ph.D.
Reynaldo F. Macías, Ph.D.
Patricia M. McDonough, Ph.D.
Peter L. McLaren, Ph.D.
Marjorie Faulstich Orellana, Ph.D.
Gary A. Orfield, Ph.D.
Robert A. Rhoads, Ph.D.
Mike A. Rose, Ph.D.
Linda J. Sax, Ph.D.
Michael H. Seltzer, Ph.D.
Daniel G. Solórzano, Ph.D.
Carlos A. Torres, Ph.D.
Noreen M. Webb, Ph.D.
Wellford W. Wilms, Ph.D.

Professors Emeriti

Marvin C. Alkin, Ed.D.
Alexander W. Astin, Ph.D.
Helen S. Astin, Ph.D.
Gordon L. Berry, Ed.D.
Nicholas G. Blurton Jones, Ph.D.
Arthur M. Cohen, Ph.D.
Donald A. Erickson, Ph.D.
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Barbara K. Keogh, Ph.D.
John D. McNeil, Ed.D.
Bengt Muthén, Ph.D.
Don T. Nakanishi, Ph.D.
Jeannie L. Oakes, Ph.D. (*Presidential Professor Emerita of Educational Equity*)
C. Robert Pace, Ph.D.
W. James Popham, Ed.D.
Val D. Rust, Ph.D.
Rodney W. Skager, Ph.D.
Romeria Tidwell, Ph.D.
Carl Weinberg, Ed.D.
Richard C. Williams, Ph.D.
Charles Z. Wilson, Ph.D.

Associate Professors

Christina A. Christie, Ph.D.
Robert Cooper III, Ph.D.
Noel D. Enyedy, Ph.D.
Tyrone C. Howard, Ph.D.
Rashmita S. Mistry, Ph.D.
Ernest D. Morrell, Ph.D.
John S. Rogers, Ph.D.
William A. Sandoval, Ph.D.
Concepción M. Valadez, Ph.D.
Jeffrey J. Wood, Ph.D.

Assistant Professors

Li Cai, Ph.D.
José-Felipe Martínez, Ph.D.
Edith Mukudi Omwami, Ph.D.
Thomas M. Philip, Ph.D.
Jane E. Pizzolato, Ph.D.
José Luis Santos, Ph.D.
Richard L. Wagoner, Ph.D.

Adjunct Professors

Diane Durkin, Ph.D.
Eloise Lopez Metcalfe, Ph.D.
Faye C. Peitzman, Ph.D.
Jody Z. Priselac, Ed.D.
Linda P. Rose, Ph.D.
Eugene Tucker, Ed.D.

Adjunct Associate Professor

Philip Ender, Ph.D.

Adjunct Assistant Professor

Bruce L. Barbee, Ed.D.

Scope and Objectives

As one of the top-ranked public graduate programs in education in the nation, the Department of Education is guided by a commitment to integrate theory and practice and to improve educational practice and policy. The department attracts prominent scholars and is internationally recognized for its research centers in evaluation, higher education, child development, and urban education. Whether students choose to pursue a Ph.D., an Ed.D., a master's degree, or a services or instructional credential, they graduate with a broad understanding of educational theory and tested practice.

Undergraduate Study

Education Studies Minor

The Education Studies minor is intended to address the diverse information needs of the UCLA undergraduate community to (1) allow students to learn more about the multitude of contemporary professional research issues confronting the field of education, (2) understand the complex interactions between the legal, social, political, and economic forces that influence and shape educational policies in America, (3) provide an introductory course sequence for students who wish eventually to pursue careers in education either as teachers or researchers, and (4) provide an analysis of current educational practices by which UCLA students can become better consumers of educational services as future parents, taxpayers, and citizens.

To enter the minor, students must have completed one minor course from the approved course list, have at least sophomore standing with a minimum overall 2.3 (C+) grade-point average, and file an admission application with

the education studies academic adviser in the Office of Student Services, 1009 Moore Hall, <http://www.gseis.ucla.edu/edminor/>. Applicants are expected to be committed to inquiry of issues central to educational research and practice. Students must follow the program of study in effect at the time of their admission. Students completing their sophomore year are encouraged to apply.

Required Upper Division Courses (32 units minimum): A minimum of four core courses selected from Education M108, 118 through 138, 149, M186, 187, and M194A, M194B, M194C (to be taken concurrently with either M182A, M182B, M182C or M183A, M183B, M183C) and three additional courses selected from the core courses listed above or from 80, 92A through 92F, M102, M103, M112, 140, 141, 142, 143, 144, M145A, M145B, 146A, 146B, 147, M148, 162, CM178/CM178L, 185, 191A through 191X, 192A/170A, 192B/170B, 196C.

Only one course from Education 80 and 92A through 92F may be applied toward the elective requirement. Courses CM178/CM178L, 192A/170A, and 192B/170B must be taken concurrently.

Each minor course must be taken for a letter grade. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Education offers Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.) degrees in Education, Master of Education (M.Ed.) degree, Doctor of Education (Ed.D.) degree, Doctor of Philosophy (Ph.D.) degree in Special Education (with California State University, Los Angeles), and Doctor of Education (Ed.D.) degree in Educational Administration (with UC Irvine).

One articulated degree program (Education M.Ed./Latin American Studies M.A.) and one concurrent degree program (Education M.Ed., M.A., Ed.D., or Ph.D./Law J.D.) are also offered.

Education

Lower Division Courses

10. Introduction to Humanities, Social Sciences, and Scientific Inquiry. (4) Lecture, 30 hours; laboratory, eight hours. Introduction to range of critical concepts in humanities, social sciences, and hard sciences. Use of multicultural texts that represent variety of genres and disciplines to develop critical reading and writing skills. Development of scientific inquiry skills relevant to study of mathematics and science in medical professions. Weekly compositions, critical thinking journals, and participation in laboratory experiments. Application of these concepts to critical issues facing

migrant farmworker communities and similar groups throughout state and country, with focus on issues such as identity, language, culture, and central social, health, and educational issues facing Latino community. Offered in summer only. P/NP or letter grading.

80. Understanding Collegiate Experience. (4) Lecture, three hours; discussion, 90 minutes. Designed to help students better understand their experience within college environment by learning about research that has been done on college students and impact of college. Examination of diverse issues ranging from reasons why students go to college to how students are ultimately influenced by college experience. Letter grading.

92A. Study of Teaching and Learning Methods. (4) Seminar, three hours. Analysis of learning theory and teaching methods in light of research on student characteristics, learning environments, student/instructor interaction, and outcomes of instruction. Application of theory and research to practice. Letter grading.

92B. Practicum in Higher Education. (4) Seminar, three hours. Requisite: course 92A. Examination of intellectual and personal development of college students through differential environments and instructional experiences. Letter grading.

92C. Dynamics of Peer Mentoring. (4) Seminar, three hours. First course in series of three designed to provide proficiency in learning principles and procedures relevant to peer mentoring. Undergraduate students present College of Letters and Science academic support workshops to their peers with intent of enhancing academic and career perspectives. Letter grading.

92D. Development of Peer Mentoring. (4) Seminar, three hours. Requisite: course 92C. Second course in series of three designed to provide proficiency in learning principles and procedures relevant to peer mentoring. Undergraduate students present College of Letters and Science academic support workshops to their peers with intent of enhancing academic and career perspectives. Concentration on relationship between creativity and presentation. P/NP or letter grading.

92E. Evaluation of Peer Mentoring. (4) Seminar, three hours. Requisite: course 92D. Third course in series of three designed to provide proficiency in learning principles and procedures relevant to peer mentoring. Undergraduate students present College of Letters and Science academic support workshops to their peers with intent of enhancing academic and career perspectives. Concentration on program assessment. P/NP or letter grading.

92F. Academic Success in Undergraduate Experience. (2) Lecture, one hour; discussion, one hour. Designed to promote understanding of factors involved in making adjustments to college experience, both academic and social. Letter grading.

98. Critical Issues in Education. (4) Seminar, 30 minutes; laboratory, 30 minutes. Introduction to critical educational issues and approaches taken by researchers, policymakers, and education advocates as they respond to these issues. Laboratory portion of course engages students in small research groups where they acquire background on particular issue of interest, learn about social sciences research, and conduct mini-research projects. May be repeated for credit. Letter grading.

Upper Division Courses

M102. Mexican Americans and Schools. (4) (Same as Chicana and Chicano Studies M102.) Seminar, four hours. Theoretical and empirical overview of Chicana/Chicano educational issues in U.S., with special emphasis on disentangling effects of race, gender, class, and immigrant status on Chicana/Chicano educational attainment and achievement. Examination of how historical, social, political, and economic forces impact Chicana/Chicano educational experience. P/NP or letter grading.

M103. Asian American Education and Schooling. (4) (Same as Asian American Studies M114.) Seminar, four hours. Examination of existing body of research from various disciplines on Asian/Pacific American educational experiences. Letter grading.

M108. Sociology of Education. (5) (Same as Sociology M175.) Lecture, four hours; discussion, one hour. Study of how U.S. educational system both promotes socioeconomic opportunities and maintains socioeconomic inequalities: historical and theoretical perspectives on role of education in U.S. society; trends in educational attainment; ways in which family background, class, race, and gender affect educational achievement and attainment; stratification between and within schools; effects of education on socioeconomic attainment, family, health, attitudes, and social participation; educational policies to improve school quality and address socioeconomic inequalities. Letter grading.

M112. Inner and Outer Worlds of Children: Social Policies. (4) (Same as Honors Collegium M112.) Seminar, four hours. Practices and analysis of social policies impacting on children. Topics include assessment, social justice and geographical space, temporal orientation, and classical theories of adolescent development. Letter grading.

118. Literacy in American Life. (5) Lecture, four hours. Introduction to literacy studies (study of reading and writing), with focus on American life. Readings on history of literacy in U.S.; studies of literacy in school, on job, and in everyday life; studies of literacy and electronic media; and self-study of development and use of students' own literacy. Letter grading.

120. Early Childhood Development. (5) Seminar, four hours. Development of positive social behaviors and their enhancement. Broad overview of children's psychological development, with emphasis on personal, social, and emotional attributes of preschool and elementary school child. Aspects of prosocial behavior and aggression. Enhancement of prosocial behavior and modification of such negative behaviors as aggression. Review and evaluation of contemporary educational programs for promoting positive social behaviors in elementary schools. Methodological aspects of child development. Overview of early childhood education and issues related to role of family, school, and television in child development. Letter grading.

121. Introduction to K-12 Issues in American Public Education. (5) Seminar, four hours. Examination of American schooling experience (K-12) and analysis of various school and social policies that impact on children and adolescents. Systematic examination of major participants in American schooling process (parents, students, teachers, geographical space of school environment, school organizations, and society) and how they are associated with American schooling experience. Discussion of contemporary themes such as risk behaviors, SAT controversy, high school exit examinations, social promotion, technology in classroom, psychosocial development of children, school reform, equal educational opportunity, affirmative action, and educational assessment. Letter grading.

122. Perspectives on American College. (5) Seminar, four hours. Examination of role colleges and universities play in larger cultural life of U.S. society. Use of analysis of student movements as vehicle for exploration of key sociological, political, and cultural developments on U.S. campuses. Emphasis on interrelated research, academic, social, and policy issues underlying diverse system of higher education. Letter grading.

123. Teaching Profession. (5) Seminar, four hours. Exploration of traditional and alternative teaching practices and public responses to teachers teaching and students learning. Examination of education in socioeconomic context and discussion of some philosophical questions that challenge teaching profession. Letter grading.

C124. History of Higher Education. (5) Seminar, four hours. Exploration of major eras in history of higher education. Topics include issues concerning ac-

cess, diversity, parental choice, cultural literacy, teacher empowerment, and role of popular media. Concurrently scheduled with course C209A. Letter grading.

C125. Politics of Education. (5) Lecture, two hours; discussion, two hours. Political dimensions of education institutions as organizations. Relationships between education institutions and political institutions in society. Political theory as foundation for public policy analysis; interest groups in education policy formation and implementation; and focus on Freirean pedagogy. Concurrently scheduled with course C207. P/NP or letter grading.

C126. Educational Anthropology. (5) Seminar, four hours. Research seminar designed to familiarize students with discipline of anthropology and subfield of anthropology and education. Exploration of concept of culture through various anthropological perspectives, with focus on theories of culture, cultural transmission and acquisition, and cultural reproduction and production for understanding schooling and its outcomes. Examination of research methodologies in anthropology, as well as critical historical overview of discipline and current debates and dilemmas of doing anthropological research in educational settings. Issues of race, gender, sexual orientation, and class, and consideration of application of anthropological theory and methods to educational practice and research. Concurrently scheduled with course C203. Letter grading.

127. Educational Psychology. (5) Seminar, four hours. Research seminar providing broad overview of educational psychology, with examination of relationship of teaching and learning; various perspectives as to how children learn; issues of teaching and learning that arise based on child's social class, ethnic background, gender, age, and level of ability. Letter grading.

128. Adolescent Psychosocial Development: Problems and Potentialities. (5) Seminar, four hours. Research seminar providing overview of research literature on adolescent development and use of education environment as context for this development. Primary focus of adolescent development to be psychosocial in nature and relation of topics to understanding of one's identity, personal development, and relationships with other individuals and society at large. Study of psychological and education theories that apply to specific sub-samples of adolescents (e.g., women and adolescents of color), as well as those that are relevant to population of youth at large. Letter grading.

129. Education and Law. (5) Seminar, four hours. Research seminar providing overview of high-profile legal controversies that shape so many policy debates at both K-12 and higher education levels. Major areas of focus include campus safety, religion and schools, educational quality and law, broadbased right to equal educational opportunity, and Internet-related issues and concerns. Letter grading.

130. Race, Class, and Education Inequality in U.S. (5) Lecture, two hours; discussion, two hours. Focus extensively on understanding educational experiences of following groups in U.S.: African Americans, Asian Americans and Pacific Islanders, Chicanas/Chicanos/Latinas/Latinos, and low-income white Americans. Examination of how historical development of public education in U.S. has influenced its present form. Critical look at some current issues and policy debates in education, including debate over school reform, bilingual education, and affirmative action. Letter grading.

131. Issues in American Education: Perspectives from History and Popular Culture. (4) Seminar, four hours. Exploration of ways we draw on different kinds of texts to illuminate critical issues in American secondary education. Issues include transformation in secondary education from 1890 to present, politics of social class, and racial and gender representation of secondary education. Letter grading.

132. Education of Exceptional Individuals. (5) Seminar, four hours; fieldwork, three hours. Research seminar providing survey of characteristics and related educational needs of students (elementary through high school age) who vary exceptionally from

normal in mental, physical, psychological, and social characteristics. Exploration of world of disabilities and area of gifted/talented education. Emphasis on educational implications; legal, social, and philosophical issues also addressed. Letter grading.

133. Topics in Child Development and Social Policies. (5) Seminar, four hours; fieldwork, two hours. Research seminar designed to enable students to (1) gain basic understanding of ways in which public policies are established and implemented, (2) learn about policy landscape in several major domains of child and family life in U.S. and other countries, and (3) use scientific research on children's cognitive and social development to evaluate and understand effects of social and economic policies. Letter grading.

134. Educational Leadership, Organizational Theory, and Policy. (5) Seminar, four hours. Designed for students interested in developing understanding and appreciation for breadth of leadership models/theories in education, including traditional, entrepreneurial, behavioral, and relationship-based models. Analysis of effectiveness of organizations and/or policies in terms of educational leadership, and development of personal leadership profile in context of alternative models of leadership relevant to education. Letter grading.

135. Introduction to Educational Inquiry. (5) Seminar, five hours. Limited to juniors/seniors. Introduction to educational inquiry, with special attention to different ways of conducting research in field of education. Focus on different ways authors conceptualize/investigate inequity. Development of culminating project. Letter grading.

137. Public Policy in Higher Education. (5) Lecture, four hours. Introduction to range of contemporary and ongoing higher education public policy issues, and conceptual and theoretical frameworks typically used to understand them. Development of fluency in public policy language, with focus on national, state, and institutional policy perspectives. Letter grading.

138. Critical Pedagogy and Cultural Studies in Urban Education. (5) Lecture, two hours; discussion, two hours. Consideration of potential of conceptual and empirical work in critical pedagogy and cultural studies to inform, confront, and transform many challenges faced in urban education today. Study of theory and research of critical pedagogists such as Paulo Freire, Peter McLaren, and others. Letter grading.

140. Time and Behavior in Educational Organizations. (4) Seminar, three hours. Designed for juniors/seniors. Exploration of psychosocial perspective of how temporal orientation and time investments impact and shape human behavior, with specific emphasis on educational issues related to school reform, teen pregnancy, school violence, teacher burnout, teacher midlife crisis, cultural diversity, information-seeking behaviors, and academic attainment. Letter grading.

141. Writing to Learn: Teaching Writing in Elementary and Secondary Schools. (4) Seminar, four hours. Ways to teach writing at elementary and secondary level through examination of related concepts of ideas, evidence, part, and whole, and writing process. Emphasis on how reading, writing, and thinking exercises engage students and lead them to develop their own ideas. Letter grading.

142. Reflections of Education Abroad Program Study. (4) Seminar, two hours; activity, two hours. Designed to provide returned Education Abroad Program (EAP) students with structured opportunity to deepen their reflections on their time abroad through contact with literature, academic articles, and speakers. Provides EAP reciprocity students with opportunity to analyze their transition to UCLA and allows both returned and reciprocity students chances to learn through service to EAP. Letter grading.

143. Understanding Pathways to College. (4) Lecture, two hours; discussion, two hours. Examination of inequality across K-12 and higher education to understand how college admissions are stratified across racial and class lines. Roles of school personnel, higher education admissions, families, and students in promoting equal educational opportunity. Course is good preparation for students interested in working in

UCLA programs such as Early Academic Outreach Programs that serve students in Los Angeles area schools. Letter grading.

144. Advanced Undergraduate Research Seminar. (4) Seminar, four hours. Limited to juniors/seniors. Advanced independent skills course of joint interest to professor and student. Research topics deal with K-12 American educational experience, with specific emphasis on diversity, assessment, technology, at-risk, geographical space, and psychosocial development of children. Letter grading.

M145A-M145B. Restoring Civility: Understanding, Using, and Resolving Conflict. (4-4) (Same as Chicana and Chicano Studies M174A-M174B.) Lecture, one hour; discussion, three hours. Designed for students who want to learn principles of dialogue and mediation, as alternatives to violence, and practice how to apply them in educational settings. In Progress (M145A) and letter (M145B) grading.

146A. Research Apprenticeship in Peer Counseling. (4) Seminar, four hours. Limited to juniors/seniors. Highly interactive, student-centered course designed to provide hands-on experience in academic peer advising and leadership and understanding of underlying theories, principles, and related issues. Students advise their peers in Education Studies minor courses and build community among those students. Letter grading.

146B. Research Apprenticeship in Peer Advising and Leadership. (4) Seminar, four hours. Enforced prerequisite: course 146A. Limited to juniors/seniors. Highly interactive, student-centered course designed to provide hands-on experience in academic peer advising and leadership and understanding of underlying theories, principles, and related issues. Students advise their peers in Education Studies minor courses and build community among those students. Letter grading.

147. Lesbian, Gay, Bisexual, and Transgender Issues in Education and Law. (4) Lecture, four hours. Lesbian, gay, bisexual, and transgender-related controversies that arise in schools, colleges, and universities today and how they are being addressed by legal and education communities. In particular, examination of real-life consequences of current laws and exploration of what might be done to make things better for all persons. Letter grading.

M148. Women in Higher Education. (4) (Same as Women's Studies M148.) Seminar, three hours. Designed for juniors/seniors. Overview of issues related to experience of women in higher education. Topics include curricular transformation, feminist pedagogy, gender equity, women faculty members, and intersection of gender and race. Letter grading.

149. Innovation and Social Entrepreneurship in Education. (5) Lecture, two hours; laboratory, two hours. Exploration of various types of charter schools as well as alternative methods for social change. Evaluation of in-depth social entrepreneurship, its theoretical constructs, and its application to charter schools as social enterprises. Letter grading.

150. Student Development in Theory and Practice. (2) Seminar, two hours. Introduction to field of student affairs and contribution of student development theory. General overview of various student affairs functions and programs, along with key theories that inform practice. P/NP grading.

162. Policy Analysis and Real Politics of Education. (3) Lecture/discussion, three hours. Exploration of relationship between scholarly policy analysis and actual workings of policy systems. Selected topics include achievement standards and assessment, school finance, equal access to education, and school reform. Letter grading.

170A. Experiential Learning: Community-Based Outreach Programs. (2) Fieldwork, four hours. Enforced corequisite: course 192A. Training and supervised practicum for undergraduate students interested in raising their academic achievement and that of high school and middle school students. Letter grading.

170B. Experiential Learning: America Reads. (2) Fieldwork, four hours. Enforced corequisite: course 192B. TB test required prior to first day of instruction. Training and supervised practicum for undergraduate students, including tutoring and mentoring of K-3 students at America Reads sites. Letter grading.

CM178. Critical Media Literacy and Politics of Gender: Theory and Production. (4) (Same as Women's Studies CM178.) Seminar, three hours. Corequisite: course CM178L. Use of range of pedagogical approaches to theory and practice of critical media literacy that necessarily involves understanding of new technologies and media forms. Study of both theory and production techniques to inform student analysis of media and critical media literacy projects. Concurrently scheduled with course CM278. Letter grading.

CM178L. Critical Media Literacy and Politics of Gender: Laboratory. (2) (Same as Women's Studies CM178L.) Laboratory, two hours. Corequisite: course CM178. Hands-on production experience as integral component of course CM178. Concurrently scheduled with course CM278L. Letter grading.

M182A. Language, Literacy, and Human Development Ethnography. (2) (Same as Afro-American Studies M182A.) Fieldwork, three hours. Enforced corequisite: course M194A. Students visit after-school site on weekly basis and use ethnographic methods to document learning. Opportunity for students to connect theories of development and language and literacy learning with practice. Letter grading.

M182B. Culture, Gender, and Human Development Ethnography. (2) (Same as Afro-American Studies M182B.) Fieldwork, three hours. Enforced corequisite: course M194B. Students visit after-school site on weekly basis and use ethnographic methods to document learning. Opportunity for students to connect theories of development and language and literacy learning with practice. Letter grading.

M182C. Culture, Communications, and Human Development Ethnography. (2) (Same as Afro-American Studies M182C.) Fieldwork, three hours. Enforced corequisite: course M194C. Students visit after-school site on weekly basis and use ethnographic methods to document learning. Opportunity for students to connect theories of development and language and literacy learning with practice. Letter grading.

M183A. Language, Literacy, and Human Development Ethnography. (3) (Same as Afro-American Studies M183A.) Fieldwork, six hours. Enforced corequisite: course M194A. Students visit after-school site on weekly basis and use ethnographic methods to document learning. Opportunity for students to connect theories of development and language and literacy learning with practice. Letter grading.

M183B. Culture, Gender, and Human Development Ethnography. (3) (Same as Afro-American Studies M183B.) Fieldwork, six hours. Enforced corequisite: course M194B. Students visit after-school site on weekly basis and use ethnographic methods to document learning. Opportunity for students to connect theories of development and language and literacy learning with practice. Letter grading.

M183C. Culture, Communications, and Human Development Ethnography. (3) (Same as Afro-American Studies M183C.) Fieldwork, six hours. Enforced corequisite: course M194C. Students visit after-school site on weekly basis and use ethnographic methods to document learning. Opportunity for students to connect theories of development and language and literacy learning with practice. Letter grading.

185. Community Service Learning for Academic Achievement. (4) Lecture, two hours; discussion, two hours. Must be taken prior to course 192A. Emphasis on cognitive learning and motivation theories and their relevance to strategies for developing curricular instructional techniques and training that contribute to tutoring, counseling, and other instructional assistance in various school settings. P/NP or letter grading.

M186. Equal Rights and Unequal Education. (4) (Same as Political Science M144C and Public Policy M186.) Lecture, four hours. Exploration of contradictions between American beliefs about equal opportuni-

ty and racial equality and inequalities that exist in public education. Three major topic areas in education as vehicles for understanding philosophical and empirical complexities of issues surrounding equality in American education and life. Examination of issues from legal, sociological, political, and philosophical perspectives. Arguments range from Martin Luther King to Ronald Reagan, and legal cases include Plessy versus Ferguson to Brown versus Board of Education, as well as cases still pending in courts. Letter grading.

187. Variable Topics in Education. (5) Seminar, five hours. Limited to juniors/seniors. Variable topics course organized around disciplinary knowledge central to development of core understandings of educational and learning processes, phenomenon, policies, methods, and instruction. Development of culminating project. Consult *Schedule of Classes* for topics and instructors. May be applied as core credit for Education Studies minor students. May be repeated three times for credit. Letter grading.

191A-191X. Current Issues in Education. (4 each) Seminar, four hours. Limited to juniors/seniors. Variable topics course organized on selected current issues basis, integrating field observations and readings through seminar discussions. Development of culminating project. Consult *Schedule of Classes* for topics and instructors. May be repeated for credit. Letter grading.

192A. Undergraduate Practicum in Community-Based Outreach Programs. (2) Seminar, two hours. Prerequisite: course 185. Enforced corequisite: course 170A. Limited to juniors/seniors. Training and supervised practicum for advanced undergraduate students to study learning and developmental factors as well as cultural, social, and environmental factors that affect student academic achievement. Exploration, testing, and application of various learning styles that enable students to become more effective learners. Letter grading.

192B. Undergraduate Practicum in America Reads. (2) Seminar, two hours. Enforced corequisite: course 170B. Limited to juniors/seniors. TB test required prior to first day of instruction. Training and supervised practicum for advanced undergraduate students that provides opportunity to reflect on both content and experience pertaining to America Reads sites. Letter grading.

193Y-193Z. High School Advising Program. (4-4) Discussion, two hours; fieldwork, five hours. Service learning courses designed to provide students with information and techniques sufficient to allow them to undertake academic advising in low socioeconomic high schools. Letter grading.

M194A. Language, Literacy, and Human Development Research Group Seminars. (5) (Same as Afro-American Studies M194A.) Seminar, three hours; laboratory, two hours (when scheduled). Enforced corequisite: course M182A or M183A. Research seminar designed to provide opportunity to combine theory and practice in study of human development in educational contexts. Focus on relationship between theories of development, culture, and language. May be taken independently for credit. Letter grading.

M194B. Culture, Gender, and Human Development Research Group Seminars. (5) (Same as Afro-American Studies M194B.) Seminar, three hours; laboratory, two hours (when scheduled). Enforced corequisite: course M182B or M183B. Research seminar designed to provide opportunity to combine theory and practice in study of human development in educational contexts. Focus on relationship between theories of development, culture, and gender. May be taken independently for credit. Letter grading.

M194C. Culture, Communications, and Human Development Research Group Seminars (5) (Same as Afro-American Studies M194C.) Seminar, three hours; laboratory, two hours (when scheduled). Enforced corequisite: course M182C or M183C. Research seminar designed to provide opportunity to combine theory and practice in study of human development in edu-

cational contexts. Focus on relationship between theories of development, culture, and technologies. May be taken independently for credit. Letter grading.

195. Community Internships in Education. (4) Tutorial, one hour; fieldwork, eight to 10 hours. Limited to juniors/seniors. Internship in K-16 schools or community to be supervised by Center for Community Learning and faculty sponsor. Students meet biweekly with teaching assistant, write reflective journals, and prepare final paper. May be repeated for credit. Individual contract with supervising faculty member required. Letter grading.

196C. Instructional Apprenticeship in Teaching and Learning. (4) Tutorial, 10 hours. Limited to juniors/seniors. Training and supervised apprenticeship for advanced undergraduate students at University Elementary School (UES). Students assist in preparation of materials and development of innovative programs under guidance of classroom teacher. Individual meetings with faculty mentor throughout term. Individual contract required. Letter grading.

196R. Research Apprenticeship in Education. (2 to 4) Tutorial, three hours per week per unit. Limited to juniors/seniors. Entry-level research apprenticeship for upper division students under guidance of faculty mentor. May be repeated for credit. Individual contract required. P/NP grading.

197. Individual Studies in Education. (2 to 4) Tutorial, four hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

199. Directed Research or Senior Project in Education. (2 to 4) Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200A. Historical Research and Writing. (4) Lecture, four hours. Methods of historical research and writing for students who are or who will be engaged in research and in report or paper or thesis writing, regardless of their field of interest. S/U or letter grading.

200B. Survey Research Methods in Education. (4) Lecture, four hours. Prerequisite: course 230A. Problems of conceptualization, organization, and gathering nonexperimental and quasi-experimental quantitative and qualitative data. S/U or letter grading.

200C. Analysis of Survey Data in Education. (4) Lecture, three hours; laboratory, two hours. Prerequisite: course 200B. Introduction to techniques of processing and analyzing nonexperimental and quasi-experimental quantitative data. S/U or letter grading.

M201C. History of American Education. (4) (Same as History M264.) Discussion, three hours. History of educational thought and of social forces impinging on American education from 1880s to present. Analysis of relation between these ideas and forces, and aims and practices of American education today. S/U or letter grading.

202. Evaluation Theory. (4) Lecture, four hours. Prevalent evaluation theories, systems for categorizing these theories, and process of theory development in educational evaluation. S/U or letter grading.

C203. Educational Anthropology. (5) Seminar, four hours. Research seminar designed to familiarize students with discipline of anthropology and subfield of anthropology and education. Exploration of concept of culture through various anthropological perspectives, with focus on theories of culture, cultural transmission and acquisition, and cultural reproduction and production for understanding schooling and its outcomes. Examination of research methodologies in anthropology, as well as critical historical overview of discipline and current debates and dilemmas of doing anthropological research in educational settings. Issues of race, gender, sexual orientation, and class, and consideration of application of anthropological

theory and methods to educational practice and research. Concurrently scheduled with course C126. Letter grading.

204A. Introduction to Education and Social Sciences. (4) Lecture, four hours. Interdisciplinary course intended to introduce students to study of educational issues, texts, and movements of thought through social sciences and comparative perspectives. S/U or letter grading.

204B. Introduction to Comparative Education. (4) Lecture, four hours. Examination of conceptual and methodological questions underlying comparative education. Particular attention to development of field and to styles of social analysis that may be applied to comparative and cross-national studies in education. S/U or letter grading.

204C. Education and National Development. (4) Lecture, four hours. Designed for graduate students. Analysis of various social sciences perspectives and methodologies (including modernization, dependency, Marxist, neo-Marxist, liberation theology, and world-system theories of change and development) and changing notions of role of education in development of less-industrialized countries of world. S/U or letter grading.

204D. Minority Education in Cross-Cultural Perspective. (4) Lecture, four hours. Historical and contemporary analyses of educational policies with regard to ethnic, religious, and linguistic minorities through selected national and international case studies. Introduction to cross-cultural education in representative countries in relation to social, political, and economic systems. S/U or letter grading.

204E. International Efforts in Education. (4) Lecture, four hours. Designed for graduate students. Critical analysis of complex world of "development cooperation," with particular reference to bilateral and multilateral efforts in education. S/U or letter grading.

204F. Nonformal Education in Comparative Perspective. (4) Lecture, four hours. Comparative and international study of organized and systematic educational activity for children, youth, and adults carried on outside of schools. Types of programs include, among others, consciousness raising, community action, skills training, literacy, and extension programs. S/U or letter grading.

205. Computers in Educational Process. (4) Lecture, four hours. Introduction to theory, experimentation, evaluation, and future of computer systems in education, with emphasis on computer-assisted instruction (CAI), and use of computers to teach programming and to foster development of writing, computational, and filing skills. S/U or letter grading.

206A. Philosophy of Education: Introduction. (4) Lecture, four hours. Systematic introduction to field, indicating ways in which philosophy serves to elucidate educational aims, content, methods, and values. S/U or letter grading.

206C. Introduction to Conceptual Analysis. (4) Lecture, four hours. Conceptual analysis of recurrent and contemporary themes in field. Emphasis on development of logical and linguistic skills used in analysis of educational problems and issues. S/U or letter grading.

C207. Politics of Education. (5) Lecture, two hours; discussion, two hours. Political dimensions of education institutions as organizations. Relationships between education institutions and political institutions in society. Political theory as foundation for public policy analysis; interest groups in education policy formation and implementation; and focus on Freirean pedagogy. Concurrently scheduled with course C125. S/U or letter grading.

208A. Perspectives on Sociology of Education. (4) Lecture, four hours. Sociological perspectives on current issues in educational policy and practice, including desegregation, decentralization, equality of educational opportunity, structure of educational organization, teacher/student relationships, reform in education at elementary, secondary, postsecondary levels. S/U or letter grading.

208C. Explanation in Social Sciences and Educational Research. (4) Lecture, two hours; discussion, two hours. Designed for graduate students. Overview of basic strategies and forms of explanation relevant to inquiry in education from vantage point of various social and behavioral sciences disciplines. S/U or letter grading.

C209A. History of Higher Education. (5) Seminar, four hours. Exploration of major eras in history of higher education. Topics include issues concerning access, diversity, parental choice, cultural literacy, teacher empowerment, and role of popular media. Concurrently scheduled with course C124. S/U or letter grading.

209C. Research and Evaluation in Higher Education. (4) Lecture, four hours. Development of conceptual and practical understanding of research and evaluation in higher education. Topics include basic statistics, survey design, data analysis, assessment issues, and research proposal writing. Letter grading.

209D. System of Higher Education. (4) Lecture, four hours. Analysis of structure and function of American postsecondary education from systems perspective. Emphasis on structure of system and comparative characteristics (faculties, student bodies, finances, outputs) of different types of institutions. S/U or letter grading.

210. Education as Profession: Theory, Research, and Practice. (4) Lecture, 90 minutes; discussion, two and one-half hours. Introduction to major issues and approaches in educational research through series of faculty presentations, selected readings, and writing assignments. Letter grading.

211A. Educational and Psychological Measurement: Underlying Theory and Practice. (4) Lecture, four hours. Requisite: course 230A. Measurement theory as applied to educational and psychological testing, with focus primarily on classical test theory, reliability estimation, and test construction and selection. S/U or letter grading.

211B. Educational and Psychological Measurement: Generalizability Theory. (4) Lecture, four hours. Requisites: courses 230A, 230B, 230C. Basic and advanced topics in use of generalizability theory to address problems in measurement. S/U or letter grading.

212A. Learning and Education. (4) Lecture, four hours. Models of learning, modeling, reinforcement, motivation, encoding, memory, transfer, individual differences, and instruction. S/U or letter grading.

212B. Motivation and Affect in Educative Process. (4) Lecture, four hours. Review of theoretical and empirical literature on motivational factors in school settings and conditions for acquisition of affective outcomes. S/U or letter grading.

213C. Group Counseling Theory and Process. (4) Lecture, three hours; discussion, one hour. Requisite: course 414A. Group productivity, leadership in groups, social perception, attitude formation, and effect of behavior changes in individuals and groups. Evaluation of social, psychological, and educational principles related to therapeutic experiences of individuals in small groups. Letter grading.

213D. Assessment in Counseling and Student Affairs. (4) Lecture, four hours. Overview of assessment issues and methods used in counseling and student affairs activities. Emphasis on concepts of testing and measurement, applications of measurement theory, and contemporary issues that are significant in influencing assessment in student affairs programs. Letter grading.

214A. Counseling Theory and Practice. (4) Lecture, four hours. Alternatives in counseling practice in relation to theories of personality development and functioning, research on effectiveness of counseling, professional issues in counseling, educational aspects of counseling. S/U or letter grading.

214C. American Professoriate: Faculty Status, Role, and Performance. (4) Discussion, four hours. Historical and contemporary issues involving American professoriate. Topics include employment, academic culture, teaching and research, reward structure, faculty development. Letter grading.

214E. Substance Abuse and Addiction. (4) Lecture, four hours. Theory and practice of prevention and intervention in substance abuse and addiction from perspective of counseling and educational practice. S/U or letter grading.

214F. Student Problems: Social Context. (4) Lecture, four hours. Designed to assist students in understanding configuration of social forces that lead to student dysfunctions. Consideration of number of contemporary social problems that are of concern to school counselors, educators in general, and behavioral scientists. S/U or letter grading.

M215. Personality, Motivation, and Attribution. (4) (Same as Psychology M239.) Discussion, three hours. Current research and theory relating personality variables (e.g., attributional styles, self-esteem) to motivational concerns such as persistence and intensity of behavior. Perceived causes of outcomes in achievement and affiliative domains. S/U or letter grading.

216. Counseling Models from Cross-Cultural Perspective. (4) Lecture, four hours. Research related to psychological, educational, and sociological characteristics of counseling clients within cross-cultural perspective and implications for counseling models. Evaluation of counseling practices through analysis of school, community, and mental health settings. Letter grading.

M217A. Social Development and Education. (4) (Same as Psychology M242D.) Seminar, four hours. Biological and familial, school, and other influences on children; development in context of current research and theoretical models; consideration of theoretical and methodological research on family, peer group, and school; application of developmental theory and research to educational practice. S/U or letter grading.

217B. Cognitive Development and Education. (4) Lecture, two hours; discussion, two hours. Designed for graduate students. Critical review of theories and research in cognitive development, with focus on work of Piaget and Vygotsky, and relation of this work to issues in educational practice. S/U or letter grading.

M217C. Personality Development and Education. (4) (Same as Psychology M245.) Lecture, four hours. Review of research and theory of critical content areas in personality development that bear on school performance: achievement motivation, self-concept, aggression, sex differences, empathy, and other social behaviors; review of status of emotional behavior in personality theory and development. S/U or letter grading.

217D. Language Development and Education. (4) Lecture, four hours. Research and theory on how children develop their first language; sociolinguistic and psycholinguistic issues in preschool and primary years; bilingual and dialectal issues. S/U or letter grading.

M217F. Adolescent Development. (4) (Same as Psychology M242G.) Seminar, four hours. Designed for graduate students. Review of recent research on physical, cognitive, social, and psychological development during second decade of life. Topics include pubertal development, changes in parent/adolescent relationships, role of peers, identity development, high-risk behaviors, stress and coping, and school adjustment. Letter grading.

M217G-M217H-M217I. Child Abuse and Neglect. (2-2-1). (Same as Community Health Sciences M245A-M245B-M245C, Dentistry M300A-M300B-M300C, Law M281A-M281B, Medicine M290A-M290B, Nursing M290A-M290B-M290C, and Social Welfare M203F-M203G-M203H.) Lecture, two hours. Course M217G is requisite to M217H, which is requisite to M217I. Intensive interdisciplinary study of child physical and sexual abuse and neglect, with lectures by faculty members of Schools of Dentistry, Law, Medicine, Nursing, and Public Health and Departments of Education and Psychology, as well as by relevant public agencies. Letter grading.

218. Measurement of Educational Achievement and Aptitude. (4) Lecture, four hours. Requisite: course 230A. Critical study of tests of achievement and aptitude, with emphasis on group tests; relation

of achievement to aptitude; social implications of measurement of intelligence; elements of validity and reliability. S/U or letter grading.

219. Laboratory: Advanced Topics in Research Methodology. (4) Laboratory, four hours. Provides assistance in design of research and interpretation of data to advanced students from other divisions. Coverage of special topics not included in other courses on research methods. S/U or letter grading.

220A. Inquiry into Schooling: Organization and Change. (4) Lecture, four hours. Critical analysis of issues in reconstruction of schooling; concepts of function and structure of schooling; organization theory; systems approaches in analysis of organization development and change. S/U or letter grading.

220B. Inquiry into Schooling: Curricular Problems and Policy Issues. (4) Lecture, four hours. Inquiry into curriculum of schooling. Critical analysis of relationship of curricular decision making to social system and contextual variables. S/U or letter grading.

221. Computer Analyses of Empirical Data in Education. (4) Lecture, two hours; laboratory, two hours. Requisites: courses 209C (section 1), 230A. Designed to develop conceptual and technical skills needed for designing and executing empirical research utilizing statistical packages. Each student conducts two original studies. Equal emphasis on techniques of data analysis and interpretation of results. S/U or letter grading.

222A. Introduction to Qualitative Methods and Design Issues in Educational Research. (4) Lecture, three hours; discussion, one hour. Introductory course for students interested in epistemology, theories, and styles of qualitative research in educational settings. Theory and practice of naturalistic, qualitative research design covered in second half of course. Letter grading.

222B. Participant-Observation Field Methods. (4) Lecture, two hours; discussion, two hours. Requisite: course 222A. First of two courses on participant-observation field methods. Key skills (e.g., observation, recording, interviewing, role management, data storage) learned through classroom lectures and simulations, and by conducting actual field-based research project. Letter grading.

222C. Qualitative Data Reduction and Analysis. (4) Lecture, two hours; discussion, two hours. Requisite: course 222B. Continuation of fieldwork project started in course 222B, with focus on practical skills and conceptual/methodological issues involved in reducing and analyzing qualitative data. Letter grading.

222D. Qualitative Inquiry: Special Topics. (4) Lecture, four hours. Special topics course on some field or aspect of qualitative inquiry. Topics may include classroom ethnography, advanced ethnographic writing and/or multimedia design, discourse analysis, and microethnography of social interaction. S/U or letter grading.

223. Aesthetics and Curriculum. (4) Lecture, two hours; discussion, two hours. Examination of various ideas and theories in aesthetics and application of these in schooling contexts. S/U or letter grading.

224. Problems and Issues in Bilingual and Multicultural Education. (4) Lecture, two hours; discussion, two hours. Introduction to development and implementation of bilingual and multicultural programs in U.S. Analysis of program goals, models, typologies, and effectiveness. S/U or letter grading.

225A. Issues in Education of Exceptional Individuals. (4) Lecture, four hours. Designed for graduate students. Analysis of major research regarding contemporary trends, issues, and programs for exceptional individuals; consideration of commonalities and differences among exceptional individuals. S/U or letter grading.

225B. Advanced Issues in Education of Exceptional Individuals. (4) Lecture, four hours. Synthesis of developmental and educational theory relevant to study of exceptional individuals, including consideration of historical context of current research and applied issues in special education. S/U or letter grading.

226. Seminar: Special Topics in Writing, Rhetoric, and Educational Methodology. (4) Seminar, four hours. Special topics seminar on writing in education that could focus on history of writing about education, social and political dimensions of it, its variation by discipline, and its uses in professional and public contexts. Letter grading.

227A. Research on Learning Characteristics of Exceptional Individuals. (4) Lecture, four hours. Requisite: course 225B. Overview of research and theory regarding learning characteristics of exceptional individuals and discussion of application of this work to educational practice. S/U or letter grading.

227B. Research on Cognitive and Language Characteristics of Exceptional Individuals. (4) Lecture, four hours. Requisite: course 227A. Review of empirical and theoretical literature regarding language and cognitive development of exceptional individuals; focus on intervention programs developing language and cognition. S/U or letter grading.

227C. Research on Behavioral and Social Characteristics of Exceptional Individuals. (4) Lecture, four hours. Requisite: course 227B. Analysis of social and emotional development of exceptional individuals and development of social competence in special education programs. S/U or letter grading.

228. Observation Methods and Longitudinal Studies. (4) Lecture, two hours; discussion, two hours. Requisite: course 230A. Design of observational and longitudinal studies. Formulation of study conclusions concerning influences on children's development. Conduct of observations; processing and analysis of data. Use of portable computers for recording observations. S/U or letter grading.

229. Seminar: Special Topics in Urban Schooling. (4) Seminar, four hours. Research on selected topics in fields of administration, policy, curriculum, and teaching studies and on conceptualization of hypotheses and research programs on division topics and issues. Letter grading.

230A. Introduction to Research Design and Statistics. (4) Lecture, four hours. Designed for graduate students. Key concepts and issues in design and conduct of social sciences research. Introduction to descriptive statistics and fundamentals of statistical inference. Letter grading.

230AL. Introduction to Research Design and Statistics: Computer Laboratory. (1) Laboratory, one hour. Corequisite: course 230A. Computer data analysis laboratory for introductory research design and statistics. Instruction in SPSS, STATA, and SAS statistical analysis packages. S/U grading.

230B. Linear Statistical Models in Social Science Research: Multiple Regression Analysis. (4) Lecture, four hours. Requisite: course 230A or passing score on screening examination. Solid and comprehensive training in regression-based methods for analyzing quantitative social science data. Letter grading.

230BL. Linear Statistical Models: Computer Laboratory. (1) Laboratory, one hour. Corequisite: course 230B. Computer data analysis laboratory for linear statistical models. Instruction in SPSS, STATA, SAS, and other relevant statistical analysis packages. S/U grading.

230C. Linear Statistical Models in Social Science Research: Analysis of Designed Experiments. (4) Lecture, four hours. Requisites: courses 230A, 230B. Solid and comprehensive training in experimental design and analysis methods, especially use of analysis of variance methods. Letter grading.

230CL. Linear Statistical Models for Experimental Research: Computer Laboratory. (1) Laboratory, one hour. Corequisite: course 230C. Computer data analysis laboratory for linear statistical models for experimental research. Instruction in SPSS and SAS statistical analysis packages. S/U grading.

230X. Applied Research Design and Statistics for Social Sciences. (4) Lecture, four hours. Requisite: course 230A or passing score on screening examination. Introduction to commonly used statistical meth-

ods in social sciences, including regression, analysis of variance, contingency tables. Emphasis on application and interpretation. Letter grading.

231A. Toolkit for Quantitative Methods Research. (4) Lecture, four hours. Requisites: courses 230A, 230B, 230C. Elementary probability. Working knowledge with calculus. Mathematical and statistical results useful for advanced quantitative methodology research. Matrix algebra. Random vectors. Multivariate distribution theory. Likelihood and Bayesian estimation and inference. Linear and generalized linear models. Simulation. S/U or letter grading.

M231B. Factor Analysis. (4) (Formerly numbered 231B.) (Same as Psychology M253.) Lecture, four hours. Requisites: courses 211B, 231A. Exploratory factor analysis, rotations, confirmatory factor analysis, multiple-group analysis. S/U or letter grading.

231BL. Factor Analysis: Computer Laboratory. (1) Laboratory, one hour. Corequisite: course 231B. Computer data analysis laboratory for exploratory and confirmatory factor analysis. Instruction in CEFA, LISREL, and other relevant statistical analysis packages. S/U grading.

231C. Analysis of Categorical and Other Nonnormal Data. (4) Lecture, four hours. Requisites: courses 230B, 230C. Regression analysis with dichotomous and polytomous dependent variables, log-linear modeling, coefficients of association for categorical variables, factor analysis, and structural equation modeling. Letter grading.

231D. Advanced Quantitative Models in Nonexperimental Research: Multilevel Analysis. (4) Lecture, four hours. Requisites: courses 230B, 230C. Examination of conceptual, substantive, and methodological issues in analyzing multilevel data (i.e., on individuals in organizational settings such as schools, corporations, hospitals, communities); consideration of alternative analytical models. Letter grading.

M231E. Statistical Analysis with Latent Variables. (4) (Same as Statistics M244.) Lecture, three hours. Requisites: courses 231A, 231B. Extends path analysis (causal modeling) by considering models with measurement errors and multiple indicators of latent variables. Confirmatory factor analysis, covariance structure modeling, and multiple-group analysis. Identification, estimation, testing, and model building considerations. Letter grading.

231EL. Latent Variable Modeling: Computer Laboratory. (1) Laboratory, one hour. Corequisite: course M231E. Computer data analysis laboratory for latent variable modeling. Instruction in LISREL and other relevant statistical analysis packages. S/U grading.

232. Instructional Analysis. (4) Lecture, four hours. Theoretical and empirical analysis of instructional variables as they relate to diverse types of instructional strategies. Development of skill in techniques of conducting instructional research. S/U or letter grading.

233. Professional Writing in Education. (4) (Formerly numbered 233A.) Lecture, four hours. Intended to assist in professional development as writers, with focus on style and organization, scholarly genres, modes of discourse, and broader issues of conceptualization and method. Letter grading.

234. Education and Social Stratification. (4) Lecture, four hours. Relationship between education and components of social stratification, including occupations and earnings. Competing theories used in studying education and social stratification; relevant research. Conclusions regarding individual career decisions, social policies, and theories of society. S/U or letter grading.

235. Theory and Practice of Leadership. (4) Discussion, four hours. Review of theory and practice of leadership within different organizational contexts, with special focus on higher education. Variety of questions addressed, including what is leadership, differences between leadership and management, role of leadership in institutional transformation. Letter grading.

236. Human Abilities. (4) Lecture, four hours. Requisite: course 230A. Nature, development, and measurement of intellectual abilities and their relations to

learning and instruction. Review of research and theory of models of ability and test development. S/U or letter grading.

237. Law and Urban Education. (4) Lecture, four hours. Examination of recent legal controversies that may impact ability of urban educators to meet needs of students in multicultural society, with special emphasis on such equity-related issues as desegregation, school finance, standardized testing, and rights of language minority students. Letter grading.

238. Cross-National Analysis of Higher Education. (4) Lecture, four hours. Comparative study of national systems of higher education: their division of work, basic values, structures of authority, modes of national integration, and types of change. S/U or letter grading.

239. Organization and Governance of Educational Systems. (4) Lecture, four hours. Academic organizations, precollegiate and postsecondary, are most appropriately studied as complex, professionalized organizations. Emphasis on characteristics of educational institutions and systems as organizations: environmental relations, governance structures, processes, and patterns of decision making and policy-making. S/U or letter grading.

240. Cultural Foundations of U.S. Education: Policy and Practice. (4) Lecture, four hours. Designed for graduate students. Cultural foundations of persistent and troubling issues and tensions in American educational policymaking and practice. S/U or letter grading.

241. Research Methodology in School Administration. (4) Lecture, four hours. Examination of research problems and strategies in school administration. S/U or letter grading.

242. Quantitative Foundations for Educational Policy and Planning. (4) Lecture, four hours. Introductory research course with focus on quantitative foundations for descriptive, tactical, and strategic policy analysis in education. S/U or letter grading.

243. Reflections on Methods in Social Sciences. (4) Lecture, four hours. Preparation: two research methods courses. Fundamental issues surrounding use of methods in social sciences, including issues in philosophy of social sciences, relationship between theory and facts, ontological status of constructs, cognition and social research, sources of evidence in ethnography, research and social policy. Letter grading.

245. Seminar: Cost-Benefit Analysis in Education. (4) Seminar, four hours. Conceptual and theoretical underpinnings of cost-benefit analysis, critical analysis of current cost-benefit studies, and procedures for conduct of cost-benefit studies. S/U or letter grading.

246A. Decision Analysis and Advanced Computer Methods for Educational Policy and Planning. (4) Seminar, four hours. Requisite: course 242. How information technology and decision analysis impact K-12 schooling, higher education, and technical training/workplace settings. With research paper, oral presentation, and two research briefs, students can pursue decision analysis areas of special interest to their professional and career objectives. S/U or letter grading.

247. Special Topics in Law and Educational Policy. (4) Lecture, four hours. Policy-based inquiry with focus on specific law-related debates that inevitably influence both K-12 and higher education communities. Identification of strategies that have been successfully employed by those who have sought to use law to shape educational policy. Letter grading.

248. Seminar: Special Topics in Child Development and Education. (4) Seminar, four hours. Content varies; limits of investigation set by individual instructor. S/U or letter grading.

249B. Seminar: Institutional Research and Program Evaluation. (4) Seminar, four hours. Critical review of institutional evaluation studies, with consideration of scope of information needed for various purposes and problems of interrelating this information to appraise overall institutional functioning and effectiveness. S/U or letter grading.

- 250A. Fundamentals of U.S. Higher Education System.** (4) Lecture, four hours. Designed for graduate students. Two-course sequence designed to orient new students to issues, ideas, and literature that constitute this division, with emphasis on underlying social and political issues that shape higher education and organizational change. Letter grading.
- 250B. Organizational Analysis of Higher Education.** (4) Lecture, four hours. Designed for graduate students. Two-course sequence designed to orient new students to issues, ideas, and literature that constitute this division, with emphasis on underlying social and political issues that shape higher education and organizational change. Letter grading.
- 250C. Theoretical Frameworks of Higher Education.** (4) Lecture, four hours. Designed for graduate students. Overview of various social sciences theories used to analyze institutions and issues of contemporary higher education. Explanation of how theory and methodology affect research design and framing of research questions in studies of higher education. Letter grading.
- 251A. Seminar: Philosophy of Education, Epistemology.** (4) Seminar, four hours. Analysis of epistemological alternatives to empiricism and their relevance to educational research, planning, and practice. S/U or letter grading.
- 251C. Seminar: Philosophy of Education, Social Science Problems—Methodological Perspectives.** (4) Seminar, four hours. Requisite: course 206C. S/U or letter grading.
- 251E. Seminar: Philosophy of Education, Selected Issues.** (4) Seminar, four hours. S/U or letter grading.
- 252A. Seminar: Educational Organizations.** (4) Seminar, four hours. Requisite: course 208A. S/U or letter grading.
- 252B. Educational Enterprise.** (4) Lecture, two hours; discussion, two hours. Requisite: course 252A. Limited to Educational Leadership Program students. Use of structural, human resource, political, and symbolic frames to study K-16 education, with focus on educational environments, organizations, and curriculum and instruction. Letter grading.
- M253A. Seminar: Current Problems in Comparative Education.** (4) (Formerly numbered 253A.) (Same as Women's Studies M253A.) Seminar, four hours. Examination of some of most influential critical theorists, including Marx, Nietzsche, Freud, Marcuse, Foucault, Fanon, and de Beauvoir and their contributions to critique of contemporary education, society, and politics. S/U or letter grading.
- 253B. Seminar: African Education.** (4) Seminar, four hours. Designed for graduate students. Contemporary issues in African educational systems, including questions of access and equity, quality and efficiency, relevance and responsiveness, links between schools and communities, and policy and practice in education. S/U or letter grading.
- 253C. Seminar: Asian Education.** (4) Seminar, four hours. S/U or letter grading.
- 253D. Seminar: Latin American Education.** (4) Seminar, four hours. S/U or letter grading.
- 253E. Seminar: European Education.** (4) Seminar, four hours. S/U or letter grading.
- 253F. Seminar: Education in Revolutionary Societies.** (4) Seminar, four hours. Multidisciplinary and comparative study of socialist educational theory examined through writings of Marx, Lenin, Mao, and others. Implementation of this theory in specific case studies, along with comparative assessments of non-socialist nations. S/U or letter grading.
- 253G. Seminar: Asian Americans and Education.** (4) Seminar, four hours. Basic issues and topics related to Asian Americans in field of education. Examples of issues and topics include Asian Americans and community, socioeconomic status, education-to-work transition, language and culture question. S/U or letter grading.
- 253H. Seminar: Chicanos/Hispanics and Education.** (4) Seminar, four hours. Basic issues and topics related to Chicanos and other Hispanic groups in education. Review of literature on specific educational levels and Chicano/Hispanic student progress (e.g., early childhood, elementary, higher education; specific topics: assessment, access, tracking, segregation; implications for schooling). S/U or letter grading.
- 253I. Education and Social Change in Middle East and Islamic World.** (4) Seminar, four hours. Critical and analytic examination of historical and current role of traditional and modern (Western) education in affecting social, political, and economic changes in countries of Middle East and Islamic world (including Pacific Rim, South and Central Asia). S/U or letter grading.
- 254. Seminar: History of Education.** (4) Seminar, four hours. Requisite: course M201C. Study of current movements in historiography of education and critical reading of texts in history of education. S/U or letter grading.
- 255A-255B-255C. Seminars: Special Topics. (4-4-4)** Seminar, four hours. May be repeated for credit. S/U or letter grading. **255A.** Measurement; **255B.** Design; **255C.** Data Analysis.
- 256A. Seminar: Special Topics in School Learning.** (4) Seminar, four hours. S/U or letter grading.
- 256B. Seminar: Special Topics in Development.** (4) Seminar, four hours. S/U or letter grading.
- 257. Seminar: Research in Counseling Psychology.** (4) Seminar, four hours. In-depth analysis of selected research approaches/areas in counseling psychology. S/U or letter grading.
- 258A. Seminar: Problems in Instructional Research.** (4) Seminar, four hours. S/U or letter grading.
- 258B. Seminar: Problems in Instructional Development.** (4) Seminar, four hours. S/U or letter grading.
- 259A. Seminar: Research on Characteristics of Students.** (4) Seminar, four hours. Analysis of concepts, methodology, and conclusions or implications underlying and resulting from major research on student characteristics. Emphasis on differential impact of higher education on student and faculty development. S/U or letter grading.
- 260. Seminar: Principles of Curriculum and Instruction.** (4) Seminar, four hours. S/U or letter grading.
- 261E. Higher Education Seminar: Diversity Issues and Research Perspectives.** (4) Seminar, four hours. Examination of how racial diversity and its related dynamics have transformed and at same time been reshaped by institutions of higher education, with focus specifically on student experiences, curricula, institutional climate, educational policies, and administrative practices. Letter grading.
- 261F. Seminar: Cognitive and Personal Development of College Students.** (4) Seminar, four hours. Examination of cognitive development of college students; issues of personal and social development, including leadership, and interpersonal relations and skills. S/U or letter grading.
- 262B. Seminar: Reading.** (4) Seminar, four hours. S/U or letter grading.
- 262F. Seminar: Research Topics in Bilingual/Multicultural Education.** (4) Seminar, four hours. S/U or letter grading.
- 262H. Economics of Urban Schooling.** (4) Lecture, two hours; discussion, two hours. Examination of principles and tools of policy analysis and their application to enhance urban schooling decision making and effectiveness. Use of economics and equity as umbrella lenses and drawing on multiple supplementary lenses and perspectives (from disciplines including history, law, political science, psychology, and sociology) to examine urban schooling issues and context and discourse of public policy genesis, implementation, and impact. Constructing and deconstructing of policy propositions related to educational reform and transformation in terms of need for change and change proposal feasibility and desirability. Methods include development of arguments supporting contrasting views of policy issues, contention and counter-contention construction and support, and methods of advocacy, persuasion, and substantiation appropriate to various forums such as congressional testimony, public political dialogue, and academic research venues. Letter grading.
- 262J. Entrepreneurial Leadership and Education: Seminar for Education and Business Leaders.** (4) Seminar, two hours; discussion, two hours. Seminar for education and business leaders to explore concepts and processes of becoming entrepreneurial leaders—meeting today's educational challenges by internalizing and applying skills and thinking used by successful entrepreneurs. Letter grading.
- 263. Seminar: Higher Education.** (4) Seminar, four hours. S/U or letter grading.
- 264. Seminar: Teacher Education.** (4) Seminar, four hours. Research, issues, and practices in preservice and in-service teacher preparation, evaluation, and certification. Social, philosophical, and methodological issues and current trends in America and abroad. Opportunities to observe, participate in, and discuss teacher education programs. S/U or letter grading.
- 265. Higher Education Policy.** (4) Lecture, four hours. Requisites: courses 250A, 250B. Understanding public policy for higher education requires understanding of both issues and policy process. Review of major topics on which U.S. government is active, as well as key actors and their influence. Letter grading.
- M266. Feminist Theory and Social Sciences Research.** (4) (Same as Women's Studies M266.) Lecture, four hours. Examination of how diverse feminist social theories of last quarter century have both challenged and strengthened conventional social sciences theories and their methodologies. Introduction especially to feminist standpoint theory, distinctive critical theory methodology now widely used in social sciences. Letter grading.
- 267. Seminar: Educational Technology.** (4) Seminar, four hours. S/U or letter grading.
- 268. Theorizing Reading: Rhetorics of Academic Discourse.** (4) Lecture, two hours; discussion, two hours. Designed for graduate students. Introduction to theoretical approaches to reading, such as poststructuralist, feminist, deconstruction, reader reception, and semiotics, and to core ideas of some leading theorists of reading, such as Roland Barthes, Wolfgang Iser, Barbara Johnson, Stanley Fish, and Gayatri Spivak. Letter grading.
- 269. Representations of Education in Cinema.** (4) Lecture, two hours; discussion, two hours. Designed for graduate students. Exploration of ways in which we draw on diverse "texts," particularly films set in or around schools, to illuminate contemporary issues in American secondary education (e.g., issues pertaining to representation of teachers, students, parents, and administrators and curriculum in popular films about high school and adolescents). Letter grading.
- 270. Introduction to Cultural Studies.** (4) Lecture, four hours. Investigation of current trends in cultural studies through examination of different methods of cultural interpretation, seminal texts in cultural studies, and practical criticism engaging popular artifacts of media culture. Emphasis on developing critical media literacy as goal of cultural studies. Letter grading.
- 271A. Proseminar: Educational Psychology.** (2) Seminar, two hours. Introduction to variety of research issues in field of educational psychology, including topics related to human development, learning and instruction, counseling, and special education, and to different methodological approaches used to study them. S/U grading.
- 272. Case-Study Research in Education Policy and Practice.** (4) Discussion, four hours. Use of case-study methods in education research, providing opportunities for applying methodological skills to actual case-study research projects. Focus on single and multiple case studies that investigate issues in education policy and practice. Letter grading.
- 273A. Structure and Dynamics of Educational System.** (4) Lecture, two hours; discussion, two hours. Overview of school administration, teaching, curriculum, and policy studies. Focus on American education as institutional system wherein federal,

state, and local policy, school administration, curriculum theory and design, and teaching are inextricably connected in delivery of education. Letter grading.

273B. Social Foundations of Education. (4) Seminar, four hours. Introduction to literature on multiculturalism and teachings in diverse social, cultural, and economic contexts. Exploration of debates over multiculturalism and teaching for democratic citizenship by review of diverse number of anthropological, sociological, educational curricula and literatures. Letter grading.

274. Science, Technology, and Social Research after Eurocentrism. (4) Lecture, four hours. Philosophy of natural sciences for social scientists that examines challenges to conventional research assumptions raised by multicultural and postcolonial science and technology studies that have emerged since World War II. Focus on sciences and technologies in third-world development projects, comparative ethnosciences movements, and new theories of knowledge and how to do maximally objective research emerging from these literatures. Letter grading.

275. Race and Education. (4) Seminar, four hours. Designed for graduate students. Examination of role of race in educational policymaking. Exploration of broad interpretation of how schools contribute to racial stratification and inequality by linking sociological and sociopsychological theories of race, racial attitudes, and conflict to historical policy analysis. Letter grading.

276. Contemporary Theories of Writing. (4) Lecture, four hours. Review of current theories of writing and literacy research and examination of relationships among writing and literacy, culture, and human development. In particular, examination of history of writing research over last three decades as part of broader intellectual history. Letter grading.

277. Language in Classroom. (4) Seminar/field-work, four hours. Survey of language and literacy theories and examination of relationship between literacy learning and social practices of classrooms/schools. Study and utilization of qualitative methods of inquiry and discourse analysis. Letter grading.

CM278. Critical Media Literacy and Politics of Gender: Theory and Production. (4) (Same as Women's Studies CM278.) Seminar, three hours. Corequisite: course CM278L. Use of range of pedagogical approaches to theory and practice of critical media literacy that necessarily involves understanding of new technologies and media forms. Study of both theory and production techniques to inform student analysis of media and critical media literacy projects. Concurrently scheduled with course CM178. Letter grading.

CM278L. Critical Media Literacy and Politics of Gender: Laboratory. (2) (Same as Women's Studies CM278L.) Laboratory, two hours. Corequisite: course CM278. Hands-on production experience as integral component of course CM278. Concurrently scheduled with course CM178L. Letter grading.

279. History of Urban Schooling. (4) Lecture, four hours. Designed for graduate students. Survey of major events, political and economic forces, and ideas that shaped urban schools since 1890. Examination of historical scholarship across range of political/ideological perspectives. Letter grading.

280A. Seminar: Selected Topics in Special Education. (2 to 6) Seminar, two to six hours. Focus on research and clinical problems in special education. Introduction to range of clinical services and research strategies. Exploration of current topics in field. S/U or letter grading.

280B. Seminar: Exceptional Individuals. (4) Seminar, four hours. Limited to doctoral students. S/U or letter grading.

281. College Access Seminar. (4) Seminar, two hours; discussion, two hours. Knowledge of changing dynamics of college access at individual, organizational, and field levels and understanding of links between K-12 and postsecondary stratification and how educational advantage and disadvantage accumulates throughout education and affects equity in college access. Letter grading.

282. Students at Risk: Reconsideration. (4) Seminar, four hours. Designed for second-year graduate students. Notion of at risk has become standard element of biomedical/public health and educational/social sciences discourse. Consideration of risk from range of disciplines and modes of inquiry. Letter grading.

283. Social Research in Multicultural and Postcolonial World. (4) Lecture, four hours. Philosophy of social sciences that focuses on how to think fruitfully about two issues: (1) inevitability of nonneutral procedures and results of research conducted within liberal state that must be committed to value-neutrality and (2) challenges that multicultural and postcolonial social theory have raised to conventional research theories and methodologies. Letter grading.

284. Critical Theory in Education: Power, Politics, and Liberation. (4) Lecture, four hours. Designed for graduate students. Introduction to major themes, issues, and methodologies within what has come to be known as "critical and educational tradition," including some major theoretical writings in liberal, neo-Marxist, left liberal/postmodernist, and Marxist subfields of critical education tradition. Letter grading.

M285. Culture, Brain, and Development Forum. (1) (Same as Anthropology M293, Applied Linguistics M232, Neuroscience M293, and Psychology M248.) Seminar, 90 minutes every other week. Interdisciplinary seminar series to provide students with exposure to current research in understanding complex relationship between culture, brain, and development. S/U grading.

M286. Culture, Brain, and Development. (4) (Same as Anthropology M293S, Applied Linguistics M233, and Psychology M247.) Seminar, three hours. Designed for graduate students. Integration of knowledge across different disciplines to understand interrelations of culture, brain, and development, where development includes both human ontogeny and human phylogeny. S/U or letter grading.

287. Research on Language Issues in Education. (4) Seminar, four hours. Roles of language(s) in formal and informal education, including study of opportunities and challenges offered by language variation found in schools. Examination of language acquisition theories along with those of language ideologies, language policies, and multilingualism. Letter grading.

288. Research Apprenticeship Course. (2) Discussion, two hours. Course facilitates mentorship model of training Ph.D. students in education, with focus on development of graduate student research topics. Assignment of common readings related to these topics; students have opportunity to offer and receive feedback. May be repeated for credit. S/U grading.

M289A-M289B. Immigration, Racial Change, and Education in 21st-Century Metropolis. (4-4) (Same as Political Science M287A-M287B, Public Policy M289A-M289B, and Sociology M290A-M290B.) Seminar, four hours. Examination of metropolitan American society and institutions at beginning of 21st century. Consideration of best available information on patterns of settlement, changing functions of urban space and institutions, and issues of opportunity linked to urban structure in society facing unprecedented demographic change that will end primarily European domination of our society by mid-century, creating democracy with no racial or ethnic majority. How this demographic transition and postindustrial transformation of urban functions and space interact to shape opportunity and inequality. Vast economic transformations, brought about by globalization of workplace and dramatic decline of industrial employment in advanced nations, not only greatly raise stakes on creating equal opportunity but also cut off what were previously extremely important parts of intergenerational mobility. In Progress (M289A) and letter (M289B) grading.

290. Educational Policy Analysis: Research, Theory, and Practice. (4) Seminar, four hours. Broad overview of development of educational policy from 1950s to present. Examination of current issues and debates within educational policy in U.S. through dif-

ferent theoretical lenses. Exploration of major bodies of research on educational policy and alternative paradigms. Letter grading.

291. Organizational and Leadership Theory in Education. (4) Lecture, four hours. Introduction to contemporary and historical conceptions of organization and leadership in context of formal schooling. Exploration of these conceptions through inquiry into school and college settings. Letter grading.

292. Curriculum Theory, Research, and Practice. (4) Seminar, four hours. Survey of history of theories and perspectives shaping what is taught in schools, providing graduate students broad understanding of various values, beliefs, and power relations shaping K-12 curriculum in U.S. Letter grading.

293. Teaching Studies: Research and Theory into Practice. (4) Seminar, four hours. Exploration of historical, theoretical, and empirical perspectives related to teaching and teacher education, providing graduate students with broad overview of relevant literature and current issues shaping teaching profession in U.S. Letter grading.

296A-296F. Seminars: Research Topics in Education. (2 each) Seminar, three hours. Advanced study and analysis of current topics in education. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

296G. Research Topics in Education: Legal Aspects of Educational Management. (2) Lecture, two hours. Examination and analysis of legal issues, especially as they apply to school organizations. Letter grading.

296H. Research Topics in Education: Organizational Theory. (2) Lecture, two hours. Examination and analysis of organizational theories, especially as they apply to school organizations. Letter grading.

M297. Interdisciplinary Relationship Science. (4) (Same as Anthropology M295S, Psychology M236, and Sociology M270.) Lecture, three hours. Limited to graduate students. Diverse approaches to relationship science in fields of anthropology, education, psychology, and sociology. Focus on theme of understanding biological, behavioral, and cultural aspects of relationships through diverse theoretical and methodological approaches. Use of broad definition of interpersonal relationships, including relationships such as parent-child, teacher-student, sibling, peer, kin, romantic relationships, marriages, and friendships. S/U or letter grading.

M298A-M298B-M298C. Relationship Science Forums. (2-2-2). (Same as Anthropology M295A-M295B-M295C, Psychology M237A-M237B-M237C, and Sociology M269A-M269B-M269C.) Seminar, 90 minutes. Limited to graduate students. Current research and theory about personal relationships presented by members of seminar, faculty members, and guest speakers from diverse fields, including anthropology, education, psychology, and sociology. May be repeated for credit. S/U grading.

299A-299B-299C. Research Practicum: Education. (4 to 8 each) Clinical, to be arranged. May be repeated for credit. S/U or letter grading.

300. Dissertation Writing Workshop: Interdivisional Seminar. (4) Seminar, one hour; discussion, two hours; laboratory, one hour. Limited enrollment. Introduction for doctoral candidates to dissertation writing as genre that can be analyzed or broken down with its constituent parts and, vice versa, which is constructed out of materials that can be identified and analyzed. S/U grading.

301. Introduction to Information and Presentation Tools. (1) Laboratory, one hour. Limited to credential program students. Sequence of laboratory sessions providing preservice teachers with introduction to education technology infrastructure and classroom presentation tools. Introduction to resources and services, e-mail functions and Internet, and presentation software and multimedia elements. S/U grading.

305. Health Education for Teachers. (2) Lecture, two hours. Limited to Teacher Education Program students. Teaching/learning process as applied to personal and community health. Topics include psycho-

active drugs (alcohol, tobacco, and narcotics), human sexuality, nutrition, community health resources, and analysis of state's health framework. S/U grading.

309. Methodologies for English Language Learners. (2) Laboratory, two hours. Limited to credential program students. Pedagogy for bilingual and English language learners. Discussion of competencies needed by all content area teachers of English language, including strategies for teaching in and through English. Topics include educational issues, organizational approaches, and communicative approach; strategies and activities. Letter grading.

310. Professional Communication for Graduate Students in Education. (2) Lecture, two hours. Writing workshop on students' papers in progress to ensure professional standards. Analysis and group discussion of rhetorical and stylistic principles. May be repeated once. S/U grading.

311. Principles and Methods of Computer Literacy and Classroom Application—K-12. (2) Lecture, one hour; laboratory, 30 minutes. Introduction to use of computers in educational environment. Discussion of issues on why and how to integrate computers into curriculum and hands-on practice that allows students to demonstrate skills discussed. S/U grading.

312. Basic Principles of Curriculum and Instruction. (4) Lecture, four hours. Analysis and practice of basic principles and concepts for planning, conducting, and evaluating units of curriculum and instruction. Emphasis on study and utilization of variety of instructional strategies and their application in elementary and secondary schools. S/U or letter grading.

314A. Principles and Methods for Curriculum, Instruction, and Leadership in Mathematics. (6 to 12) Lecture, six to 12 hours. Problem solving, curriculum development, implementation of California Mathematics Framework, strategies for encouraging women and minorities into mathematics, and leadership development. S/U grading.

315. Principles and Methods for Teaching Reading for Multiple Subject Instruction. (3) Lecture, three hours. Reading instruction in elementary schools. Analysis of reading problems and programs; study of relationships between language/culture/cognition and reading. Examination and development of instructional programs; analysis and practice of alternative instructional methods. Observation and participation in schools. S/U grading.

315B. Elementary Literacy Methods. (3) Seminar, three hours. Theoretical principles and pedagogical strategies necessary for developing and maintaining balanced comprehensive literacy program for elementary students. Examination of how children learn to read, write, and use language. S/U grading.

316A-316B. Principles and Methods for Teaching Reading for Single Subject Instruction. (2-2) Lecture, two hours. Course 316A is requisite to 316B. Reading instruction in secondary schools. Analysis of reading problems and programs; study of relationships between language/culture/cognition and reading. Examination and development of instructional programs; analysis and practice of alternative instructional methods. Observation and participation in schools. S/U grading.

318A. Integrated Methods for Elementary Teachers. (3) Lecture, three hours. Examination and development of instructional programs and analyses and practices of instructional methods for teaching K-6 content, with emphasis on interdisciplinary approach that integrates content areas. Aligned with California state frameworks and California content standards for grades K-12 that address needs and interests of diverse students. S/U grading.

318B. Integrated Methods for Elementary Teachers. (4) Lecture, four hours. Examination and development of instructional programs and analyses and practices of instructional methods for teaching K-6 content, with emphasis on interdisciplinary approach that integrates content areas and infuses literacy, technology, and strategies for second language learners. Aligned with California state frameworks and California content standards for grades K-12, including

English Language Development Standards—all of which address needs and interests of diverse students. S/U grading.

318C. Integrated Methods for Elementary Teachers. (3) Lecture, three hours. Examination and development of instructional programs and analyses and practices of instructional methods for teaching K-6 content, with emphasis on interdisciplinary approach that integrates content areas and infuses literacy, technology, and strategies for second language learners. Aligned with California state frameworks and California content standards. S/U grading.

319. Mathematics Methods. (3) Lecture, three hours. Details of children's mathematics thinking and use of that information as way to ground learning about teaching of mathematics. S/U grading.

320A-320B-320C. Secondary Content and Literacy Methods. (3-3-3) Lecture, one hour; discussion, one hour; fieldwork, one hour. Examination and development of instructional programs and analyses and practices of instructional methods for teaching content in grades 7-12. Emphasis on interdisciplinary approach that integrates content areas and infuses literacy, technology, and strategies for second language learners. Methods courses are aligned with California state frameworks and California content standards for grades K-12, including English Language Development Standards—all of which address needs and various interests of diverse students. S/U grading.

327. Principles and Methods for Teaching Spanish Effectively. (2 to 6) Lecture, two to six hours. Emphasis on proficiency-based foreign language teaching methods incorporating language assessment skills, modeling, hands-on experiences, and development of teaching and teacher-training materials. S/U grading.

330A. Observation and Participation. (2 to 6) Site-based fieldwork, 10 to 15 hours. Students are assigned to school sites with racially, culturally, and linguistically diverse student populations. Throughout observation and participation period, students analyze effective strategies for achieving learning for all students, including sociocultural approaches and appropriate use of educational technology. S/U grading.

330B. Student Teaching. (4 to 8) Site-based fieldwork, 10 to 20 hours. Requisite: course 330A. Students are assigned to student teach in designated school sites with racially, culturally, and linguistically diverse student populations. Throughout student teaching period, students as novice teachers plan, implement, and assess daily lessons and units, as well as actively engage in reflecting on issues specific to school/community relations. S/U grading.

330C. Student Teaching. (4 to 8) Site-based fieldwork, 10 to 30 hours. Requisite: course 330A. Students are assigned to student teach in designated school sites with racially, culturally, and linguistically diverse student populations. Throughout student teaching period, students as novice teachers plan, implement, and assess daily lessons and units, as well as actively engage in reflecting on issues specific to school/community relations. Increased daily responsibilities. S/U grading.

330D. Classroom Residency and Teaching. (4) Site-based fieldwork, 40 hours. Students are employed by local school districts to teach as residents in designated school sites with racially, culturally, and linguistically diverse student populations. Students also work in collaborative teams through Teacher Education Program to initiate change project in their local school and/or complete case study on project. S/U grading.

360A-360B-360C. Novice Seminars. (3-3-3) Seminar, three hours. Analysis of basic principles and concepts of planning, conducting, and evaluating units of curriculum and instruction. Emphasis on study and utilization of constructivist strategies and their application in elementary and secondary schools. Examination of different methods of computer literacy and teaching subject matter. Students may conduct ethnographic inquiry of local community of their designated partnership district. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

390A-390B. Colloquium Series: Psychological Studies in Education. (1-1) Seminar, one hour. Required of first- or second-year Psychological Studies in Education (PSE) Ph.D. students. Training to conduct research that has practical implications as well as theoretical significance within field of applied human development. Children's cognitive, language, personality, and social development in educationally relevant settings such as schools and daycare programs. Series unites scholars exploring contemporary issues in applied human development and provides framework to facilitate research and training in human development within school and UCLA community, as well as forum to share information with other investigators and institutions. S/U grading.

400. Foundations of Education Policy Analysis. (4) Lecture, four hours. Principles of decision making and policy formation, implementation, and analysis in context of educational system. Critical perspectives include effectiveness and equity of educational delivery systems and programs, and complex nature of educational governance in contemporary America. S/U or letter grading.

401. Structure and Functions of Schools as Complex Organizations. (4) Lecture, four hours. Critical analysis of alternative assumptions about organizations, how they function, and why people in organizations behave as they do. Application to special circumstances of schools and to contemporary issues and problems in school leadership, improvement, and reform. S/U or letter grading.

402. Curriculum Principles and Practices. (4) Lecture, four hours. Critical analysis of major concepts, underlying assumptions, policy issues, and processes in development and implementation of curriculum in educational setting. Problems in formulation of purposes, selection of learning experiences, organization of curriculum, and curriculum evaluation. S/U or letter grading.

403. Teaching: Principles and Problems. (4) Lecture, four hours. Current knowledge concerning good teaching and theoretical/conceptual, empirical, and/or ideological bases for these assertions. Alternative models of classroom teaching, their assumptions, and evidence of worth. Current policy issues and problems in generating and sustaining effective teaching. S/U or letter grading.

405A-405B-405C. Teaching in Urban Schools. (3-3-3) Seminar, three hours. Limited to credential program students. Letter grading:

405A. Exploring Communities. (3) Seminar, three hours. Limited to credential program students. Learning about urban communities by critically examining students' own beliefs, assumptions, and experiences about them to deepen understanding and appreciation about urban communities. Letter grading.

405B. Exploring Identities. (3) Seminar, three hours. Limited to credential program students. Examination and reflection on student values, beliefs, assumptions, and lives to determine how these factors shape way students view their world and, in particular, teaching, learning, students, their families, and their neighborhoods and communities. Letter grading.

405C. Exploring Family-School Connections. (3) Seminar, three hours. Limited to credential program students. Exploration of interrelationships among families, communities, and school systems, engaging parents, caregivers, guardians, students, and school personnel to develop strategies for working with families and to develop philosophy of education. Letter grading.

406. Social Foundations and Cultural Diversity in American Education. (3) Lecture, three hours. Intensive consideration of American society, particularly its racial and cultural diversity. Topics include historical development of American society, manifestations of cultures, and ways to learn about students' cultures.

Examination of issues of racism, ethnic and gender differences, perspectives of cultural diversity, and impact on educational and classroom instruction. Letter grading.

407. Psychological Foundations of Education. (3) Lecture, three hours. Analysis of learning processes in school situations. Processes of human motivation, affective, cognitive, social, and personal development of children and adolescents, evaluation of learning, individual differences, and implications of relevant theory and research. Letter grading.

408B-408U. Language and Culture. (2 each) Lecture, two hours. Exploration of complex nature of culture and impact of cultural diversity in urban classroom through class discussions, activities, and reflective expression, allowing novice teachers to understand and participate in rich cultural diversity of urban Los Angeles. By exploring culture as tool and target for increasing understanding of multicultural diversity, teachers may construct meaningful connections to students, communities, and home cultures. Each course may be taken independently for credit. Letter grading. **408B.** Latino/Latina Emphasis; **408C.** Asian American Emphasis; **408D.** African American Emphasis. **408U.** General Topics.

409. Language Structure, Acquisition, and Development. (3) Lecture, three hours. Theoretical foundations of language structure and first and second language acquisition, with focus on major themes of current research that provide framework for schooling of English language learners. Rationale for bilingual/English language acquisition and development programs. Historical and current theories and models of language. Letter grading.

410A-410B. Issues in Higher Education and K-12. (4-4) Lecture, four hours. Two-course sequence providing overview of higher education systems. Letter grading. **410A.** Designed to develop knowledge, understanding, and sensitivity to contemporary critical and emerging issues that impact higher education, with focus on both theory and practice. Study of relationships between issues in K-12 schooling and higher education. **410B.** Exploration of issues that affect both higher education and K-12 schooling, including restructuring and reform, standards, access and accountability, and new technologies. Emphasis on both theory and practice.

411. Procedural Issues in Evaluation. (4) Lecture, four hours. Assessment methodologies appropriate for evaluation problems. Writing evaluation proposals, developing program monitoring procedures, selecting appropriate evaluation design strategies, coping with ethical considerations in evaluation, framing decision context, and reporting evaluation results. Letter grading.

412. Why Research Matters to Student Affairs Practice. (3 or 4) Lecture, three hours. How do researchers study impact of college on students? How can that research be used to improve student affairs practice? Introduction to world of college impact research and orientation to major ongoing studies conducted at UCLA and beyond. Students interact with researchers and provide input on how research results might be utilized to improve work of student affairs. Letter grading.

413A. Language and Culture. (2) Lecture, two hours. Limited to credential program students. Offered and required for Spanish BCLAD credential. Focus on language of emphasis for bilingual teachers. Practice in listening, reading, speaking, and writing competencies required for bilingual classrooms. Assessment made at end of course to determine proficiency of BCLAD candidates. Letter grading.

413B. Methodology for Primary Language Instruction. (3) Lecture, three hours. Offered and required for Spanish BCLAD credential. Consideration of models for developing cultural and language skills of home speakers of language of emphasis; practice in use of activities to develop student ability to use language for real-world and academic purposes in culturally appropriate ways. Consideration of models for teaching academic content in primary language for delivery of core curriculum to bilingual students. Letter grading.

413C. Culture of Emphasis. (3) Lecture, three hours. Offered and required for Spanish BCLAD credential. Conducted in Spanish. Discussion of commonalities of culture of emphasis in its home country or countries; major historical periods and events; values, belief systems, and expectations; migration and immigration; historical and contemporary demography. Letter grading.

414A. Student Affairs Practice and Theory. (3) Lecture, two hours; discussion, two hours. Examination of needs for student affairs services, range of services, their philosophical and empirical rationale, and their organization and evaluation to provide knowledge base for developing theories of practice. Ongoing involvement in cooperative learning project to examine these issues both as team members and as individuals. Offered in summer only. Letter grading.

414B. Legal and Ethical Issues in Student Affairs. (4) Lecture, two hours; discussion, two hours. Examination of legal and ethical issues that affect student affairs practices in higher education. Letter grading.

414C. College Student Counseling. (3) Lecture, three hours. Overview of counseling at college counseling centers. Review of historical context, philosophical and practical bases, organization and administration, specific programs, and contemporary issues and trends in college student counseling. Offered in summer only. Letter grading.

414D. Career Development and Interventions in Colleges. (4) Lecture, two hours; discussion, one hour; laboratory, one hour. Examination of challenges faced by college students of all ages in preparing for careers in dynamic multicultural world economy and interventions for assisting them. Emphasis on understanding development and evaluation of interventions. Letter grading.

414E. Administration of Student Affairs. (3) Lecture, two hours; discussion, two hours. Overview of general knowledge and processes essential to effectively administer programs or services under student affairs. Examination of relationship between environmental factors and strategies for governing, planning, and managing student affairs programs and services. Offered in summer only. Letter grading.

415A. Assessment in Counseling Psychology. (4) Lecture, four hours. Prerequisites: courses 218, 230A. Overview of rationale for and procedures used by counseling psychologists for assessing individuals in multicultural society. Emphasis on standardized cognitive assessment instruments and specialized techniques for diagnosis, evaluation, and development of counseling strategies for at-risk populations. S/U or letter grading.

415B. Advanced Assessment in Counseling Psychology. (4) Lecture, four hours. Prerequisite: course 415A. Advanced course in assessment for counseling psychologists. Survey and demonstration of instruments of achievement, affective, and personality appraisal, with emphasis on testing and interplay between assessment and psychological functioning for reducing risks of failure in academic, personal, and social areas. S/U or letter grading.

416. Program Development and Planning in Student Affairs. (4) Lecture, two hours; discussion, two hours. Planning of programs that provide or support learning for individuals and groups in student affairs context. Examination of philosophical foundations of program planning, along with pedagogical and logistical dimensions of program development. Letter grading.

417. Program Evaluation and Assessment in Student Affairs. (4) Lecture, two hours; discussion, two hours. Introduction to assessment and program evaluation in context of student affairs and higher education. Examination of usefulness and appropriateness of various program evaluation methodologies and theories of assessment practice. Letter grading.

418. Group Dynamics in Student Affairs. (3) Lecture, two hours; discussion, two hours. Group productivity, leadership in groups, social perception, attitude formation, and effect of behavior changes in individuals

and groups. Evaluation of social, psychological, and educational principles related to experiences of individuals in small groups. Letter grading.

419. Introduction to Research in Student Affairs. (4) Lecture, two hours; discussion, two hours. Designed to orient students to nature of educational research in context of student affairs. Overview of quantitative, qualitative, and mixed methods to position students as scholar-practitioners. Exposure to these methods supplemented by examination of how they are used in published research relevant to practice of student affairs. Letter grading.

420A. Principles of Curriculum. (4) Lecture, four hours. Critical examination of basic concepts underlying determination of objectives, selection and organization of learning experiences, and evaluation process. S/U or letter grading.

421A. Programs and Research in Early Childhood Education. (4) Lecture, four hours. Preparation: one course from development series. Examination of child care programs and research in early childhood education, including review of relation of research in developmental psychology and education to goals of early childhood education and day care. S/U or letter grading.

421D. Parents and Community Agents in Child Development. (4) Lecture, four hours. Preparation: one course from development series. Critical review of theoretical basis and effectiveness of training programs for parents of young and elementary school-aged children; relation of preschool parent programs to family development and role of programs in community. S/U or letter grading.

421F. Issues in Application of Child Development and Educational Research to Social Policy. (4) Lecture, four hours. Relationships among policymakers and social scientists in development, implementation, and evaluation of policies affecting children and their families. Students learn to design and conduct interviews, analyze legislative documents, and present analyses to policymakers. S/U or letter grading.

422. Inquiry into Schooling: Basic Issues. (4) Lecture, four hours. Critical examination of basic issues and problems in organization and reconstruction of precollegiate schooling. Consideration of historical development and changing functions of schooling in American society; school organization; schooling alternatives; problems in management of educational change. S/U or letter grading.

423. Humanistic Curriculum. (4) Lecture, four hours. Consideration of philosophical and cultural foundations of humanistic curricular strategies. Review of techniques and procedures of affective education with view to their place in overall theory of teaching and learning. S/U or letter grading.

424A. Social Studies in Curriculum. (4) Lecture, four hours. Advanced study in social studies curriculum development; problems in defining objectives and organizing single and multidisciplinary programs; critical review of literature on cognitive and affective learning in social science, with emphasis on experimental study of instructional programs. S/U or letter grading.

424B. Reading in Curriculum. (4) Lecture, four hours. Prerequisite: course 230A. Study of reading curricula and instructional procedures, with emphasis on rationale and research underlying their development and research comparing their effectiveness. S/U or letter grading.

424G. Curriculum Design for Bilingual Education. (4) Lecture, four hours. Advanced study of curriculum design for bilingual educational programs. Philosophical basis for bilingual programs; theories of learning and instruction applied to bilingual learner; language assessment; development of instructional component; program evaluation. S/U or letter grading.

425. Principles for Teaching Exceptional Individuals. (2) Lecture, two hours. Approaches for teaching exceptional individuals in special and regular education programs. Principles and assumptions underlying alternative approaches. Emphasis on individualizing curriculum and classroom management. Letter grading.

- 431A. Administration in Higher Education. (4)** Lecture, four hours. Overview of college and university administration and introduction to policy research and analysis in postsecondary institutions. Case studies of administrative problems, policies, and practices. Management information systems, resource allocation, and issues related to responsibility, authority, and participation in administrative decisions. S/U or letter grading.
- 431B. Curriculum and Instruction in Higher Education. (4)** Lecture, four hours. Principles of curriculum and instruction in postsecondary programs. Theory and practices in goal setting, testing, media selection, and related instructional responsibilities. Preparing to teach college-level students. S/U or letter grading.
- 432. Seminar: Professional Topics in Higher Education. (4)** Seminar, four hours. S/U or letter grading.
- 433A. Design of Learning Environments. (4)** Discussion, four hours. Theory and practice of design of technology-supported learning environments. Examination of how theories of learning guide design and enactment of learning environments in classrooms and informal settings and how research on such environments informs theory and design. Letter grading.
- 433B. Development of Educational Media. (4)** Discussion, four hours. Current issues and trends in design of interactive educational media. Design and development of prototype educational media applications, integration plans for established or experimental educational media into formal learning settings, or evaluations of specific learning environments. Letter grading.
- 440C. Administration of Instructional Programs. (4)** Lecture, four hours. Examination of current educational problems in society and strategies of their solution through curriculum policy and practice; instructional design and operation; in-service training of teaching staffs. S/U or letter grading.
- 441A. Instructional Supervision A. (4)** Lecture, four hours. Analysis of teaching in light of research-substantiated elements of instruction: task analysis, appropriate objectives, principles that increase motivation, rate and degree of learning, retention and transfer, monitoring and adjusting instruction to meet needs and capacities of learners. S/U or letter grading.
- 441B. Instructional Supervision B. (4)** Lecture, four hours. Requisite: course 441A. Basic techniques of script-taping instructional episodes, planning teacher conferences through analysis of script-tapes, conducting and analyzing growth-evoking teacher conferences. Conducting mini-lessons to demonstrate elements of good instruction. S/U or letter grading.
- 442B. Legal Aspects of Educational Management and Practice. (4)** Lecture, four hours. Examination of structures and kinds of law governing educational systems in U.S.; constitutional dimensions of church/state relations; employees' civil rights and legal aspects of hiring, firing, and negotiating procedures; student attendance, control, and civil rights. S/U or letter grading.
- 443. Policy Analysis in Education. (4)** Lecture, four hours. Overview of political, economic, and legal context of educational policy formation. Included in examination are issues that impact on minorities (e.g., bilingual education, desegregation, affirmative action, role of subdominants in policy-making process). S/U or letter grading.
- 444B. Equality of Educational Opportunity through Desegregation and Finance Case Law. (4)** Lecture, four hours. Requisite: course 442B. Concentrated review of definition of equality of educational opportunity as it is being developed by courts in cases concerning desegregation and educational finance. S/U or letter grading.
- 447. Seminar: Educational Policy and Planning, Special Studies. (1 to 4)** Seminar, one to four hours. S/U or letter grading.
- 448A. Urban School Leadership. (4)** Lecture, four hours. Analysis of problems of urban school leadership. Emphasis on changing nature of urban principalship, with considerable attention to role of other school and community agencies that interact with urban school leaders. S/U or letter grading.
- 448B. Urban Leadership Laboratory. (4)** Laboratory, four hours. Analysis of and opportunity to practice human and technical skills requisite for success as urban school leader. Topics include negotiations, conflict resolution, applied computer technology, and effective communication. Activities include gaming, simulation, computer programming, and group dynamics. S/U or letter grading.
- 450. Leadership Capacity Building. (4)** Lecture, one hour; discussion, one hour; small group work, one hour. Limited to Educational Leadership Program students. Course taken in year three of Educational Leadership Program to help students with their communication and leadership capacities. Letter grading.
- 451. Foundations of Organizations and Leadership. (4)** Lecture, four hours. Limited to Educational Leadership Program students. Promotion of understanding of traditional and contemporary conceptions of leadership and organizational theory, with application of these conceptions to student professional work settings. Letter grading.
- 452A-452B. Educational Enterprise. (4-4)** Lecture, two hours; discussion, two hours. Limited to Educational Leadership Program students. Use of structural, human resource, political, and symbolic frames to study K-16 education. Letter grading. **452A.** Focus on purposes of education governance, finance, access, and equity. **452B.** Requisite: course 452A. Focus on educational environments, organizations, and curriculum and instruction.
- 453. Technology in Education: Learning and Leading with Technology. (2)** Lecture, two hours; discussion, two hours. Limited to Educational Leadership Program students. Examination of roles of technology in educational institutions and leadership issues associated with these roles. Letter grading.
- 454A. Action Research: Collaboration in Change. (4)** Lecture, one hour; discussion, two hours; small group work, one hour. Limited to Educational Leadership Program students. Students carry out full cycle of action research at educational site. Projects done in teams as students hone and assess their collaboration abilities. Exploration of qualitative and quantitative data gathering methods and analyses. Letter grading.
- 454B. Action Research: Collaboration in Change. (4)** Lecture, one hour; discussion, two hours; small group work, one hour. Limited to Educational Leadership Program students. Second course in two-course sequence on learning how to do and use action research. Honing of team processes and team roles while collaborating on data collection and analysis at educational site. Letter grading.
- 455. Writing and Inquiry. (4)** (Formerly numbered 455A.) Lecture/workshop, eight hours per month; discussion, one hour; laboratory, one hour. Limited to doctoral students in Educational Leadership Program. Intended to assist students' professional development as writers, addressing style and organization, scholarly genres, modes of discourse, and broader issues of conceptualization and method. Letter grading.
- 456. Altering Structure and Culture of Schooling. (4)** Lecture, four hours; discussion, four hours. Limited to Educational Leadership Program students. Using applied orientation, examination of variety of approaches to organizational change and ways to sustain change. Letter grading.
- 457. Student Development across K-16 Spectrum. (4)** Discussion, four hours. Limited to Educational Leadership Program students. Theories of student development applicable to K-12 and postsecondary education. Focus on educational influences on self and others. Letter grading.
- 458A-458B-458C. Practicum: Dissertation. (2-2-2)** Seminar, two hours; discussion, two hours. Preparation: completion of first- and second-year courses. Limited to Educational Leadership Program students. Development of Ed.D. dissertation and its implementation to improve educational practice. Letter grading.
- 460. Seminar: Special Issues in Evaluation. (2 or 4)** Seminar, one or two hours; discussion, one or two hours. Topics and instructors vary each term. Recent emphases included evaluation utilization and cost-effectiveness evaluation. S/U or letter grading.
- 462. Seminar: Community College. (4)** Seminar, four hours. Topics include problems and practices in community college formation, instruction, student flow, administration, and/or evaluation. S/U or letter grading.
- 470A. Seminar: Large Systems and Individual Schools. (4)** Seminar, four hours. S/U or letter grading.
- 470B. Seminar: Educational Government. (4)** Seminar, four hours. S/U or letter grading.
- 481. Knowledge and Inquiry in Classroom. (4)** Lecture, four hours. Logical features of instruction and their application to inquiry techniques in teaching and learning. Various conceptions of truth, belief, and fact and opinion, and their application to classroom learning situations. S/U or letter grading.
- 482A. Instructional Strategies in Urban Education: Technology. (4)** Lecture, four hours. Emphasis on instructional practices that integrate use of technology in urban public schools. Study and analysis of comprehensive specialized use of appropriate computer-based technology to facilitate teaching and learning process, and debriefing of field experiences integrating technology-related tools. Letter grading.
- 482B. Instructional Strategies in Urban Education: English Language Learners. (4)** Lecture, four hours. Emphasis on instructional practices that support English language learners in urban public schools. Study and analysis of delivery of comprehensive specialized instruction for English learners and debriefing of field experiences implementing adopted instructional programs for development of academic language, comprehension, and knowledge in core academic curriculum. Letter grading.
- 482C. Instructional Strategies in Urban Education: Special Populations. (4)** Lecture, four hours. Emphasis on instructional practices that support special populations in urban public schools. Continuation of study of statutory provisions, curriculum, instruction, and assessment issues related to teaching students with disabilities, students who are at risk, and students who are gifted and talented. Research opportunities, additional methods in content areas for advanced study, and preparation of M.Ed. inquiry included. Letter grading.
- 485. Advanced Study of Health Education. (1)** Lecture, four hours. Student meetings with instructors, field specialists, and team cohorts to study and analyze delivery of comprehensive support for physical, cognitive, emotional, and social well-being of students in K-12 classrooms. Topics include prevention and intervention strategies, accessing local and community resources, curriculum and instruction, and major state and federal laws related to student health and safety. Letter grading.
- 489. Instructional Strategies in Education. (4)** Lecture, four hours. Methods for academic instruction, including research and active participation in adversary approach, forms of debate, role playing, interaction process analysis, and feedback instruments. Practical emphasis on social sciences and humanities instruction, K-12. S/U or letter grading.
- 490A. Instructional Decision Making. (4)** Lecture, four hours. Analysis of instructional models relevant to public school education. Assumptions, procedures, and constraints of each strategy considered in terms of learner and task variables. Laboratory experiences in classroom settings permit students systematically to apply and evaluate alternative instructional strategies. S/U or letter grading.
- 491. Curricular Decision Making. (4)** Lecture, two hours; discussion, two hours. Examination of alternative solutions for practical problems that classroom teachers face in making curricular decisions. Analysis of influences of psychological, societal, and institutional factors in curricular decisions. Letter grading.
- 492. Evaluation of Teaching and Learning. (4)** Lecture, four hours. Relationship between appraisal instruments and information required for making deci-

sions about teachers, pupils, and materials. Recent developments in evaluation of teaching and learning; use of modern appraisal techniques in classroom settings. S/U or letter grading.

495A-495B-495C. Resident Seminars. (4-4-4) Seminar, two hours; site-based fieldwork, two hours. Students meet in individual sessions with instructors and other field support faculty and in team and cluster cohorts for university-school partnership, in addition to regular seminars to debrief field experiences and continue study of curriculum, instruction, and assessment issues. Research opportunities, additional methods in content areas, and preparation of M.Ed. portfolio included. Letter grading.

498A-498B-498C. Directed Field Experience. (2 to 8 each) Clinical, to be arranged. Field experiences designed to increase understanding of student fields of study. May be repeated for credit. S/U or letter grading.

499A-499B-499C. Advanced Directed Field Experience. (4 to 8 each) Clinical, to be arranged. May be repeated for credit. S/U or letter grading.

501. Cooperative Program in Special Education. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA academic adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Limited to UCLA doctoral students in special education. Used to record enrollment in practicum courses taken under cooperative arrangements with USC. S/U grading.

596. Directed Independent Study. (4 to 12) Tutorial, to be arranged (four hours for every 4 units). Individual study or research for graduate students. May be repeated for credit. S/U or letter grading.

597. Preparation for Master's Comprehensive Examinations or Doctoral Qualifying Examinations. (4 to 12) Tutorial, to be arranged. Individual study for master's comprehensive examinations or for Ph.D. or Ed.D. qualifying examinations. May be repeated for credit. S/U grading.

598. Thesis Research. (4 to 12) Tutorial, to be arranged (four hours for every 4 units). Research for and preparation of master's thesis. May be taken for maximum of 12 units. S/U grading.

599. Dissertation Research. (4 to 12) Tutorial, to be arranged (four hours for every 4 units). Research for and preparation of doctoral dissertation. May be repeated for credit. S/U grading.

ELECTRICAL ENGINEERING

*Henry Samueli School of Engineering
and Applied Science*

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Undergraduate Affairs*

Professors

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A.V. Balakrishnan, Ph.D.
Frank M.C. Chang, Ph.D. (*Wintek Endowed Professor
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Panagiotis D. Christofides, Ph.D.

Babak Daneshrad, Ph.D.
Suhas N. Diggavi, Ph.D.
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William J. Kaiser, Ph.D.
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Professors Emeriti

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Donald M. Wiberg, Ph.D.
Jack Willis, B.Sc.

Associate Professors

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Diana L. Huffaker, Ph.D.
Yuanxun Ethan Wang, Ph.D.

Assistant Professors

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Michael P. Fitz, Ph.D.
Ingrid M. Verbauehede, Ph.D.
Eli Yablonovitch, Ph.D. (*Northrop Grumman Opto-
Electronic Professor of Electrical Engineering*)

Scope and Objectives

The Department of Electrical Engineering fosters a dynamic academic environment that is committed to a tradition of excellence in teaching, research, and service and has state-of-the-art research programs and facilities in a variety of fields. Departmental faculty members are engaged in creative research investigations and are pursuing new technologies across disciplines in order to serve the needs of industry, government, society, and the scientific community by expanding the body of knowledge in the field. Interactions with other disciplines are strong. Faculty members regularly conduct collaborative research projects with colleagues in the Geffen School of Medicine, Graduate School of Education and Information Studies, School of Theater, Film, and Television, and College of Letters and Science.

There are three primary research areas in the department: circuits and embedded systems, physical and wave electronics, and signals and systems. These areas cover a broad spectrum of specializations in, for example, communications and telecommunications, control systems, electromagnetics, embedded computing systems, engineering optimization, integrated circuits and systems, microelectromechanical systems (MEMS), nanotechnology, photonics and optoelectronics, plasma electronics, signal processing, and solid-state electronics.

The program grants one undergraduate degree (Bachelor of Science in Electrical Engineering) and two graduate degrees (Master of Science and Doctor of Philosophy in Electrical Engineering). The graduate program provides students with an opportunity to pursue advanced coursework, in-depth training, and research investigations in several fields.

Undergraduate Study

The Electrical Engineering major is a designated capstone major. Undergraduate students complete a design course in which they integrate their knowledge of the discipline and engage in creative design within realistic and professional constraints. Students apply their knowledge and expertise gained in previous mathematics, science, and engineering coursework. Within a multidisciplinary team structure, students identify, formulate, and solve engineering problems and present their projects to the class.

Electrical Engineering B.S.

Capstone Major

The undergraduate curriculum allows Electrical Engineering majors to specialize in one of three emphasis areas or options. The three options are structured as an electrical engineering degree, and the only degree offered to undergraduate students by the department is the Bachelor of Science degree in Electrical Engineering.

No distinction is made among the three options: (1) electrical engineering (EE) option is the regular option that provides students with

preparation in electrical engineering with a range of required and elective courses across several disciplines; (2) computer engineering (CE) option provides students with preparation in embedded systems and software and hardware issues. Students replace some of the senior courses in the regular EE option with computer engineering-oriented courses or computer science courses; and (3) biomedical engineering (BE) option provides students with exposure to additional chemistry and life sciences courses and helps them meet most of the premedical preparation requirements so that they are prepared for careers in bioengineering, medicine, or electrical engineering.

Electrical Engineering Option

Preparation for the Major

Required: Chemistry and Biochemistry 20A; Computer Science 31, 32; Electrical Engineering 1, 2, 3, 10, M16 (or Computer Science M51A); Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 4AL, 4BL.

The Major

Required: Electrical Engineering 101, 102, 103, 110, 110L, 113, 115A, 115AL, 121B, 131A, 132A, 141, 161, Mathematics 132, Statistics 105; three technical breadth courses (12 units) selected from an approved list available in the Office of Academic and Student Affairs; and three major field elective courses (12 units), one design course (4 units), and one laboratory course (2 to 4 units) selected from one of the following pathways:

Antennas and Microwaves: Three major field elective courses from Electrical Engineering 162A, 163A, and 163B or 163C; one capstone design course from 164D or 184DA/184DB (count as one course); and one laboratory course from 164L (or by petition from 194 or 199)

Integrated Circuits: Three major field elective courses from Electrical Engineering 115B, 115C, and 132B or 163A; one capstone design course from 115D or 184DA/184DB (count as one course); and one laboratory course from 115BL (or by petition from 194 or 199)

Microelectromechanical (MEMS) Systems: Three major field elective courses from Electrical Engineering 115B or 123A or 124, 128 or 163A or 173, and CM150; one capstone design course from 129D; and one laboratory course from 122L or CM150L (or by petition from 194 or 199)

Photonics and Plasma Electronics: Three major field elective courses from Electrical Engineering 172, 173, and 174 or 175 or M185; one capstone design course from 173D; and one laboratory course from 172L (or by petition from 194 or 199)

Signals and Systems: Three major field elective courses from Electrical Engineering 114, 115B, 131B, 132B, 136, 142, 162A; one capstone design course from 113D, 173D, 180D, 181D, or 184DA/184DB

(count as one course); and one laboratory course from 115BL or M116L or M171L (or by petition from 194 or 199)

Solid State: Three major field elective courses from Electrical Engineering 123A, 123B, and 124 or 128; one capstone design course from 129D; and one laboratory course from 122L (or by petition from 194 or 199)

For information on University and general education requirements, see the College and Schools section earlier in this catalog.

Biomedical Engineering Option

Preparation for the Major

Required: Chemistry and Biochemistry 20A, 20B, 20L, 30A, 30AL; Computer Science 31; Electrical Engineering 1, 2, 3, 10, M16 (or Computer Science M51A); Life Sciences 2, 3; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 4AL, 4BL.

The Major

Required: Electrical Engineering 101, 102, 103, 110, 110L, 113, 115A, 115AL, 131A, Mathematics 132, Statistics 105; three technical breadth courses (12 units) selected from an approved list available in the Office of Academic and Student Affairs; and three major field elective courses (12 units), one design course (4 units), and one laboratory course (2 units) selected from the *biomedical engineering* pathway as follows: three major field elective courses from Electrical Engineering 132A, 141, and 176 or Mechanical and Aerospace Engineering 105A; one capstone design course from Electrical Engineering 113D or 180D; and one laboratory course from Biomedical Engineering CM186C or Electrical Engineering M171L (or by petition from 194 or 199).

For information on University and general education requirements, see the College and Schools section earlier in this catalog.

Computer Engineering Option

Preparation for the Major

Required: Chemistry and Biochemistry 20A; Computer Science 31, 32, 33, 35L; Electrical Engineering 1, 2, 3, 10, M16 (or Computer Science M51A); Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 4AL, 4BL.

The Major

Required: Electrical Engineering 101, 102, 103, 110, 110L, 113, 115A, 115C, M116C (or Computer Science M151B), 131A, 132B or Computer Science 118, Mathematics 132, Statistics 105; three technical breadth courses (12 units) selected from an approved list available in the Office of Academic and Student Affairs; and three major field elective courses (12 units), one design course (4 units), and one laboratory course (2 to 4 units) selected from the *computer engineering* pathway as follows: three major field elective courses from Computer Science 111, M117 (or Electrical Engineering 132A), and 131 or 132 or 180; one capstone design course from Electrical Engineering 113D, 180D, 181D, or 184DA/184DB (count as one course); and one laboratory

course from Electrical Engineering M116L (or by petition from 194 or 199).

For information on University and general education requirements, see the College and Schools section earlier in this catalog.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Electrical Engineering offers Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Electrical Engineering.

Electrical Engineering

Lower Division Courses

1. Electrical Engineering Physics I. (4) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisites: Mathematics 32A, 32B, Physics 1A, 1B. Introduction to modern physics and electromagnetism with engineering orientation. Emphasis on mathematical tools necessary to express and solve Maxwell equations. Relation of these concepts to waves propagating in free space, including dielectrics and optical systems. Letter grading.

2. Physics for Electrical Engineers. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 1. Introduction to concepts of modern physics necessary to understand solid-state devices, including elementary quantum theory, Fermi energies, and concepts of electrons in solids. Discussion of electrical properties of semiconductors leading to operation of junction devices. Letter grading.

3. Introduction to Electrical Engineering. (2) Lecture, two hours. Introduction to field of electrical engineering; research and applications across several areas, such as communications, control, electromagnetics, embedded computing, engineering optimization, integrated circuits, MEMS, nanotechnology, photonics and optoelectronics, plasma electronics, signal processing, and solid-state electronics. P/NP grading.

10. Circuit Analysis I. (4) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisites: course 1 or Physics 1C, Mathematics 33A, 33B. Introduction to linear circuit analysis. Resistive circuits, Kirchhoff laws, operational amplifiers, node and loop analysis, Thevenin and Norton theorem, capacitors and inductors, duality, first-order circuits, step response, second-order circuits, natural response, forced response. Letter grading.

M16. Logic Design of Digital Systems. (4) (Same as Computer Science M51A.) Lecture, four hours; discussion, two hours; outside study, six hours. Introduction to digital systems. Specification and implementation of combinational and sequential systems. Standard logic modules and programmable logic arrays. Specification and implementation of algorithmic systems: data and control sections. Number systems and arithmetic algorithms. Error control codes for digital information. Letter grading.

Upper Division Courses

100. Electrical and Electronic Circuits. (4) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisites: course 1 or Physics 1C, Mathematics 33A, 33B. Electrical quantities, linear circuit elements, circuit principles, signal waveforms, transient

and steady state circuit behavior, semiconductor diodes and transistors, small signal models, and operational amplifiers. Letter grading.

101. Engineering Electromagnetics. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: course 1 or Physics 1C, Mathematics 32A and 32B, or 33A and 33B. Electromagnetic field concepts, waves and phasors, transmission lines and Smith chart, transient responses, vector analysis, introduction to Maxwell equations, static and quasi-static electric and magnetic fields. Letter grading.

102. Systems and Signals. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: course 1 (or Physics 1C), Mathematics 33A, 33B. Elements of differential equations, first- and second-order equations, variation of parameters method and method of undetermined coefficients, existence and uniqueness. Systems: input/output description, linearity, time-invariance, and causality. Impulse response functions, superposition and convolution integrals. Laplace transforms and system functions. Fourier series and transforms. Frequency responses, responses of systems to periodic signals. Sampling theorem. Letter grading.

103. Applied Numerical Computing. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: Civil Engineering 15 or Computer Science 31, Mathematics 33A, 33B (33B may be taken concurrently). Introduction to numerical computing and analysis. Floating point representation and round-off error; numerical methods for systems of linear equations; methods for systems of nonlinear equations. Introduction to numerical optimization, linear programming, least squares, interpolation, approximation, numerical integration; and differential equations. Letter grading.

110. Circuit Analysis II. (4) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisite: course 10. Corequisite: course 102. Sinusoidal excitation and phasors, AC steady state analysis, AC steady state power, network functions, poles and zeros, frequency response, mutual inductance, ideal transformer, application of Laplace transforms to circuit analysis. Letter grading.

110L. Circuit Measurements Laboratory. (2) Laboratory, four hours; outside study, two hours. Requisite: course 100 or 110. Experiments with basic circuits containing resistors, capacitors, inductors, and op-amps. Ohm's law voltage and current division, Thevenin and Norton equivalent circuits, superposition, transient and steady state analysis, and frequency response principles. Letter grading.

113. Digital Signal Processing. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 102. Relationship between continuous-time and discrete-time signals. Z-transform. Discrete Fourier transform. Fast Fourier transform. Structures for digital filtering. Introduction to digital filter design techniques. Letter grading.

113D. Digital Signal Processing Design. (4) Laboratory, four hours; outside study, four hours. Requisite: course 113. Real-time implementation of digital signal processing algorithms on digital processor chips. Experiments involving A/D and D/A conversion, aliasing, digital filtering, sinusoidal oscillators, Fourier transforms, and finite wordlength effects. Course project involving original design and implementation of signal processing systems for communications, speech, audio, or video using DSP chip. Letter grading.

114. Speech and Image Processing Systems Design. (4) (Formerly numbered 114D.) Lecture, three hours; discussion, one hour; laboratory, two hours; outside study, six hours. Requisite: course 113. Design principles of speech and image processing systems. Speech production, analysis, and modeling in first half of course; design techniques for image enhancement, filtering, and transformation in second half. Lectures supplemented by laboratory implementation of speech and image processing tasks. Letter grading.

115A. Analog Electronic Circuits I. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 110. Review of physics and operation of diodes and bipolar and MOS transistors.

Equivalent circuits and models of semiconductor devices. Analysis and design of single-stage amplifiers. DC biasing circuits. Small-signal analysis. Operational amplifier systems. Letter grading.

115AL. Analog Electronics Laboratory I. (2) Laboratory, four hours; outside study, two hours. Requisites: courses 110L, 115A. Experimental determination of device characteristics, resistive diode circuits, single-stage amplifiers, compound transistor stages, effect of feedback on single-stage amplifiers. Letter grading.

115B. Analog Electronic Circuits II. (4) Lecture, four hours; discussion, one hour; outside study, eight hours. Requisite: course 115A. Analysis and design of differential amplifiers in bipolar and CMOS technologies. Current mirrors and active loads. Frequency response of amplifiers. Feedback and its properties. Stability issues and frequency compensation. Letter grading.

115BL. Analog Electronics Laboratory II. (4) Laboratory, four hours; outside study, eight hours. Requisites: courses 115AL, 115B. Experimental and computer studies of multistage, wideband, tuned, and power amplifiers, and multiloop feedback amplifiers. Introduction to thick film hybrid techniques. Construction of amplifier using hybrid thick film techniques. Letter grading.

115C. Digital Electronic Circuits. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: course 115A, Computer Science M51A. Recommended: course 115B. Transistor-level digital circuit analysis and design. Modern logic families (static CMOS, pass-transistor, dynamic logic), integrated circuit (IC) layout, digital circuits (logic gates, flipflops/latches, counters, etc.), computer-aided simulation of digital circuits. Letter grading.

115D. Design Studies in Electronic Circuits. (4) Lecture, four hours; discussion, four hours; outside study, four hours. Requisites: courses 115B, 115C. Applications of distributed circuits. Operational amplifier applications and limitations. Power amplifiers. Feedback and stability. Precision analog circuits. Analysis and design of operational amplifiers. Noise in electronic circuits. Design of oscillators, phase-locked loops, and frequency synthesizers. Introduction to design of analog-to-digital and digital-to-analog converters. Letter grading.

M116C. Computer Systems Architecture. (4) (Same as Computer Science M151B.) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: course M16 or Computer Science M51A, Computer Science 33. Recommended: course M116L or Computer Science M152A, Computer Science 111. Computer system organization and design, implementation of CPU datapath and control, instruction set design, memory hierarchy (caches, main memory, virtual memory) organization and management, input/output subsystems (bus structures, interrupts, DMA), performance evaluation, pipelined processors. Letter grading.

M116L. Introductory Digital Design Laboratory. (2) (Same as Computer Science M152A.) Laboratory, four hours; outside study, two hours. Requisite: course M16 or Computer Science M51A. Hands-on design, implementation, and debugging of digital logic circuits, use of computer-aided design tools for schematic capture and simulation, implementation of complex circuits using programmed array logic, design projects. Letter grading.

M117. Computer Networks: Physical Layer. (6) (Same as Computer Science M117.) Lecture, four hours; discussion, four hours; outside study, 10 hours. Not open to students with credit for course M171L. Introduction to fundamental data communication concepts underlying and supporting modern networks, with focus on physical and media access layers of network protocol stack. Systems include high-speed LANs (e.g., fast and gigabit Ethernet), optical DWDM (dense wavelength division multiplexing), time division SONET networks, wireless LANs (IEEE802.11), and ad hoc wireless and personal area networks (e.g., Bluetooth). Experimental laboratory sessions included. Letter grading.

121B. Principles of Semiconductor Device Design. (4) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisite: course 2. Introduction to principles of operation of bipolar and MOS transistors, equivalent circuits, high-frequency behavior, voltage limitations. Letter grading.

122L. Semiconductor Devices Laboratory. (4) Lecture, four hours; laboratory, four hours; outside study, four hours. Requisites: courses 2, 121B (may be taken concurrently). Design fabrication and characterization of p-n junction and transistors. Students perform various processing tasks such as wafer preparation, oxidation, diffusion, metallization, and photolithography. Letter grading.

123A. Fundamentals of Solid-State I. (4) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisite: course 2 or Physics 1C. Limited to junior/senior engineering majors. Fundamentals of solid-state, introduction to quantum mechanics and quantum statistics applied to solid-state. Crystal structure, energy levels in solids, and band theory and semiconductor properties. Letter grading.

123B. Fundamentals of Solid-State II. (4) Lecture, three hours; outside study, nine hours. Requisite: course 123A. Discussion of solid-state properties, lattice vibrations, thermal properties, dielectric, magnetic, and superconducting properties. Letter grading.

124. Semiconductor Physical Electronics. (4) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisite: course 123A. Band structure of semiconductors, experimental probes of basic band structure parameters, statistics of carriers, carrier transport properties at low fields, excess carrier transport properties, carrier recombination mechanisms, heterojunction properties. Letter grading.

128. Principles of Nanoelectronics. (4) Lecture, four hours; discussion, four hours; outside study, four hours. Requisites: course 1, or Physics 1A and 1B. Introduction to fundamentals of nanoscience for electronics nanosystems. Principles of fundamental quantities: electron charge, effective mass, Bohr magneton, and spin, as well as theoretical approaches. From these nanoscale components, discussion of basic behaviors of nanosystems such as analysis of dynamics, variability, and noise, contrasted with those of scaled CMOS. Incorporation of design project in which students are challenged to design electronics nanosystems. Letter grading.

129D. Semiconductor Processing and Device Design. (4) Lecture, two hours; laboratory, four hours; outside study, six hours. Requisite: course 121B. Introduction to CAD tools used in integrated circuit processing and device design. Device structure optimization tool is based on PISCES; process integration tool is based on SUPREM. Course familiarizes students with those tools. Using CAD tools, CMOS process integration to be designed. Letter grading.

131A. Probability. (4) Lecture, four hours; discussion, one hour; outside study, 10 hours. Requisites: course 102, Mathematics 32B, 33B. Introduction to basic concepts of probability, including random variables and vectors, distributions and densities, moments, characteristic functions, and limit theorems. Applications to communication, control, and signal processing. Introduction to computer simulation and generation of random events. Letter grading.

131B. Introduction to Stochastic Processes. (4) Lecture, four hours; outside study, eight hours. Requisite: course 131A. Introduction to concepts of stochastic processes, emphasizing continuous- and discrete-time stationary processes, correlation function and spectral density, linear transformation, and mean-square estimation. Applications to communication, control, and signal processing. Introduction to computer simulation and analysis of stochastic processes. Letter grading.

132A. Introduction to Communication Systems. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: courses 102, 113, 131A. Properties of signals and noise. Baseband pulse and digital signaling. Bandpass signaling techniques. Communication systems: digital transmission, frequen-

cy-division multiplexing and telephone systems, satellite communication systems. Performance of communication systems in presence of noise. Letter grading.

132B. Data Communications and Telecommunication Networks. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 131A. Layered communications architectures. Queuing system modeling and analysis. Error control, flow and congestion control. Packet switching, circuit switching, and routing. Network performance analysis and design. Multiple-access communications: TDMA, FDMA, polling, random access. Local, metropolitan, wide area, integrated services networks. Letter grading.

136. Introduction to Engineering Optimization Techniques. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: course 103, Mathematics 32A, 33A. Introduction to optimization techniques for engineering and science students. Minimization of unconstrained functions of several variables: steepest descent, Newton/Raphson, conjugate gradient, and quasi-Newton methods. Rates of convergence. Methods for constrained minimization: introduction to linear programming and gradient projection methods. Lagrangian methods. Students expected to use SEASnet computers. Letter grading.

141. Principles of Feedback Control. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 102. Mathematical modeling of physical control systems in form of differential equations and transfer functions. Design problems, system performance indices of feedback control systems via classical techniques, root-locus and frequency-domain methods. Computer-aided solution of design problems from real world. Letter grading.

142. Linear Systems: State-Space Approach. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 102. State-space methods of linear system analysis and synthesis, with application to problems in networks, control, and system modeling. Letter grading.

CM150. Introduction to Micromachining and Microelectromechanical Systems (MEMS). (4) (Same as Biomedical Engineering CM150 and Mechanical and Aerospace Engineering CM180.) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: Chemistry 20A, 20L, Physics 1A, 1B, 1C, 4AL, 4BL. Corequisite: course CM150L. Introduction to micromachining technologies and microelectromechanical systems (MEMS). Methods of micromachining and how these methods can be used to produce variety of MEMS, including microstructures, microsensors, and microactuators. Students design microfabrication processes capable of achieving desired MEMS device. Concurrently scheduled with course CM250A. Letter grading.

150DL. Photonic Sensor Design Laboratory. (4) Lecture, two hours; laboratory, four hours; outside study, eight hours. Limited to seniors. Multidisciplinary course with lectures and laboratory experiments on optical sensors. Fundamentals of intensity and interference-based transducers, polarimeters, multiplexing and sensor networks, physical and biomedical sensors. Design and implementation of optical gyroscope, computer interfacing, and signal processing. Letter grading.

CM150L. Introduction to Micromachining and Microelectromechanical Systems (MEMS) Laboratory. (2) (Same as Biomedical Engineering CM150L and Mechanical and Aerospace Engineering CM180L.) Lecture, one hour; laboratory, four hours; outside study, one hour. Requisites: Chemistry 20A, 20L, Physics 1A, 1B, 1C, 4AL, 4BL. Corequisite: course CM150. Hands-on introduction to micromachining technologies and microelectromechanical systems (MEMS) laboratory. Methods of micromachining and how these methods can be used to produce variety of MEMS, including microstructures, microsensors, and microactuators. Students go through process of fabricating MEMS device. Concurrently scheduled with course CM250L. Letter grading.

161. Electromagnetic Waves. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 101. Time-varying fields and

Maxwell equations, plane wave propagation and interaction with media, energy flow and Poynting vector, guided waves in waveguides, phase and group velocity, radiation and antennas. Letter grading.

162A. Wireless Communication Links and Antennas. (4) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisite: course 161. Basic properties of transmitting and receiving antennas and antenna arrays. Array synthesis. Adaptive arrays. Friis transmission formula, radar equations. Cell-site and mobile antennas, bandwidth budget. Noise in communication systems (transmission lines, antennas, atmospheric, etc.). Cell-site and mobile antennas, cell coverage for signal and traffic, interference, multipath fading, ray bending, and other propagation phenomena. Letter grading.

163A. Introductory Microwave Circuits. (4) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisite: course 161. Transmission lines description of waveguides, impedance transformers, power dividers, directional couplers, filters, hybrid junctions, nonreciprocal devices. Letter grading.

163B. Microwave and Millimeter Wave Active Devices. (4) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisite: course 121B. MESFET, HEMT, HBT, IMPATT, Gunn, small signal models, noise model, large signal model, loadpull method, parameter extraction technique. Letter grading.

163C. Active Microwave Circuits. (4) Lecture, three hours; outside study, nine hours. Requisites: courses 115A, 161. Theory and design of microwave transistor amplifiers and oscillators; stability, noise, distortion. Letter grading.

164D. Microwave Wireless Design. (4) Lecture, one hour; laboratory, four hours; outside study, seven hours. Requisite: course 161. Microwave integrated circuit design from wireless system perspective, with focus on (1) use of microwave circuit simulation tools, (2) design of wireless frontend circuits including low noise amplifier, mixer, and power amplifier, (3) knowledge and skills required in wireless integrated circuit characterization and implementation. Letter grading.

164L. Microwave Wireless Laboratory. (2) Lecture, one hour; laboratory, three hours; outside study, three hours. Requisite: course 161. Measurement techniques and instrumentation for active and passive microwave components; cavity resonators, waveguides, wavemeters, slotted lines, directional couplers. Design, fabrication, and characterization of microwave circuits in microstrip and coaxial systems. Letter grading.

M171L. Data Communication Systems Laboratory. (2 to 4) (Same as Computer Science M171L.) Laboratory, four to eight hours; outside study, two to four hours. Recommended preparation: course M116L. Limited to seniors. Interpretation of analog-signaling aspects of digital systems and data communications through experience in using contemporary test instruments to generate and display signals in relevant laboratory setups. Use of oscilloscopes, pulse and function generators, baseband spectrum analyzers, desktop computers, terminals, modems, PCs, and workstations in experiments on pulse transmission impairments, waveforms and their spectra, modem and terminal characteristics, and interfaces. Letter grading.

172. Introduction to Lasers and Quantum Electronics. (4) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisite: course 101. Physical applications and principles of lasers, Gaussian optics, resonant cavities, atomic radiation, laser oscillation and amplification, cw and pulsed lasers. Letter grading.

172L. Laser Laboratory. (4) Laboratory, four hours; outside study, eight hours. Requisite or corequisite: course 172. Properties of lasers, including saturation, gain, mode structure. Laser applications, including optics, modulation, communication, holography, and interferometry. Letter grading.

173. Photonic Devices. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 101. Introduction to basic principles of photonic devices. Topics include crystal optics, dielectric optical waveguides, waveguide couplers, electro-

optic devices, magneto-optic devices, acousto-optic devices, second-harmonic generation, optical Kerr effect, optical switching devices. Letter grading.

173D. Photonics and Communication Design. (4) Lecture, four hours; outside study, eight hours. Requisite: course 102. Recommended: course 132A. Introduction to measurement of basic photonic devices, including LEDs, lasers, detectors, and amplifiers; fiber-optic fundamentals and measurement of fiber systems. Modulation techniques, including A.M., F.M., phase and suppressed carrier methods. Letter grading.

174. Semiconductor Optoelectronics. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 172. Introduction to semiconductor optoelectronic devices for optical communications, interconnects, and signal processing. Basic optical properties of semiconductors, pin photodiodes, avalanche photodiode detectors (APD), light-emitting diodes (LED), semiconductor lasers, optical modulators and amplifiers, and typical photonic systems. Letter grading.

175. Fourier Optics. (4) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisites: courses 102, 161. Two-dimensional linear systems and Fourier transforms. Foundation of diffraction theory. Analysis of optical imaging systems. Spatial filtering and optical information processing. Wavefront reconstruction and holography. Letter grading.

176. Lasers in Biomedical Applications. (4) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisite: course 101. Study of different types of laser systems and their operation. Examination of their roles in current and projected biomedical applications. Specific capabilities of laser radiation to be related to each example. Letter grading.

180D. Systems Design. (4) Lecture, two hours; laboratory, two hours; outside study, eight hours. Limited to senior Electrical Engineering majors. Advanced systems design integrating communications, control, and signal processing subsystems. Different project to be assigned yearly in which student teams create high-performance designs that manage trade-offs among subsystems. Letter grading.

181D. Robotic Systems Design. (4) Lecture, two hours; laboratory, four hours; outside study, six hours. Requisites: courses M16, 110L, M116L (or Computer Science M152A), Computer Science 31, 33. Recommended: courses 113, 141, Computer Science 35L. Design of robotics systems that combine embedded hardware, software, mechanical subsystems, and fundamental algorithms for sensing and control to expose students to basic concepts in robotics and current state of art. Lecture closely tied to design laboratory where students work in teams to construct series of subsystems leading to final project. Letter grading.

184DA-184DB. Independent Group Project Design. (2-2) (Formerly numbered 184D.) Laboratory, five hours; discussion, one hour. Requisites: courses M16, 110, 110L. Courses centered on group project that runs year long to give students intensive experience on hardware design, microcontroller programming, and project coordination. Several projects based on autonomous robots that traverse small mazes and courses offered yearly and target regional competitions. Students may submit proposals that are evaluated and approved by faculty members. Topics include sensing circuits and amplifier-based design, microcontroller programming, feedback control, actuation, and motor control. In Progress (184DA) and letter (184DB) grading.

M185. Introduction to Plasma Electronics. (4) (Same as Physics M122.) Lecture, three hours. Requisite: course 101 or Physics 110A. Senior-level introductory course on electrodynamics of ionized gases and applications to materials processing, generation of coherent radiation and particle beams, and renewable energy sources. Letter grading.

188. Special Courses in Electrical Engineering. (4) Seminar, four hours; outside study, eight hours. Special topics in electrical engineering for undergraduate students taught on experimental or temporary

basis, such as those taught by resident and visiting faculty members. May be repeated once for credit with topic or instructor change. Letter grading.

194. Research Group Seminars: Electrical Engineering. (2 to 4) Seminar, four hours; outside study, eight hours. Designed for undergraduate students who are part of research group. Discussion of research methods and current literature in field. May be repeated for credit. Letter grading.

199. Directed Research in Electrical Engineering. (2 to 8) Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit with school approval. Individual contract required; enrollment petitions available in Office of Academic and Student Affairs. Letter grading.

Graduate Courses

201A. VLSI Design Automation. (4) Lecture, four hours; outside study, eight hours. Requisite: course 115C. Fundamentals of design automation of VLSI circuits and systems, including introduction to circuit and system platforms such as field programmable gate arrays and multicore systems; high-level synthesis, logic synthesis, and technology mapping; physical design; and testing and verification. Letter grading.

201C. Modeling of VLSI Circuits and Systems. (4) Lecture, four hours. Requisite: course 115C. Detailed study of VLSI circuit and system models considering performance, signal integrity, power and thermal effects, reliability, and manufacturability. Discussion of principles of modeling and optimization codevelopment. Letter grading.

M202A. Embedded Systems. (4) (Same as Computer Science M213A.) Lecture, four hours; outside study, eight hours. Designed for graduate computer science and electrical engineering students. Methodologies and technologies for design of embedded systems. Topics include hardware and software platforms for embedded systems, techniques for modeling and specification of system behavior, software organization, real-time operating system scheduling, real-time communication and packet scheduling, low-power battery and energy-aware system design, timing synchronization, fault tolerance and debugging, and techniques for hardware and software architecture optimization. Theoretical foundations as well as practical design methods. Letter grading.

M202B. Distributed Embedded Systems. (4) (Same as Computer Science M213B.) Lecture, four hours; outside study, eight hours. Requisites: course 132B or Computer Science 118, and Computer Science 111. Designed for graduate computer science and electrical engineering students. Interdisciplinary course with focus on study of distributed embedded systems concepts needed to realize systems such as wireless sensor and actuator networks for monitoring and control of physical world. Topics include network self-configuration with localization and timing synchronization; energy-aware system design and operation; protocols for MAC, routing, transport, disruption tolerance; programming issues and models with language, OS, database, and middleware; in-network collaborative processing; fundamental characteristics such as coverage, connectivity, capacity, latency; techniques for exploitation and management of actuation and mobility; data and system integrity issues with calibration, faults, debugging, and security; and usage issues such as human interfaces and safety. Letter grading.

202C. Networked Embedded Systems Design. (4) Lecture, four hours; laboratory, four hours; outside study, four hours. Designed for graduate computer science and electrical engineering students. Training in combination of networked embedded systems design combining embedded hardware platform, embedded operating system, and hardware/software interface. Essential graduate student background for research and industry career paths in wireless devices for applications ranging from conventional wireless mobile de-

vices to new area of wireless health. Laboratory design modules and course projects based on state-of-art embedded hardware platform. Letter grading.

205A. Matrix Analysis for Scientists and Engineers. (4) Lecture, four hours; outside study, eight hours. Preparation: one undergraduate linear algebra course. Designed for first-year graduate students in all branches of engineering, science, and related disciplines. Introduction to matrix theory and linear algebra, language in which virtually all of modern science and engineering is conducted. Review of matrices taught in undergraduate courses and introduction to graduate-level topics. Letter grading.

208A. Analytical Methods of Engineering I. (4) Lecture, four hours; outside study, eight hours. Limited to graduate students. Application of techniques of linear algebra to engineering problems. Vector spaces: scalar products, Cauchy/Schwarz inequality. Gram/Schmidt orthogonalization. Matrices as linear transformations: eigenvalues and spectrum. Self-adjoint and covariance matrices. Square root and factorization, Cholesky decomposition. Determinants, Cayley/Hamilton theorem. Minimal polynomials, Bezout theorem. Polar and singular value decomposition. Sequences, convergence, and matrix exponential. Applications to problems in signal processing, communications, and control. Letter grading.

M208B. Functional Analysis for Applied Mathematics and Engineering. (4) (Same as Mathematics M268A.) Lecture, four hours; outside study, eight hours. Requisites: course 208A (or Mathematics 115A and 115B), Mathematics 131A, 131B, 132. Topics may include L^p spaces, Hilbert, Banach, and separable spaces; Fourier transforms; linear functionals. Riesz representation theory, linear operators and their adjoints; self-adjoint and compact operators. Spectral theory. Differential operators such as Laplacian and eigenvalue problems. Resolvent distributions and Green's functions. Semigroups. Applications. S/U or letter grading.

M208C. Topics in Functional Analysis for Applied Mathematics and Engineering. (4) (Formerly numbered 208C.) (Same as Mathematics M268B.) Lecture, four hours; outside study, eight hours. Requisite: course M208B. Semigroups of linear operators over Hilbert spaces; generator and resolvent, generation theorems, Laplace inversion formula. Dissipative operators and contraction semigroups. Analytic semigroups and spectral representation. Semigroups with compact resolvents. Parabolic and hyperbolic systems. Controllability and stabilizability. Spectral theory of differential operators, PDEs, generalized functions. S/U or letter grading.

209AS. Special Topics in Circuits and Embedded Systems. (4) Lecture, four hours; outside study, eight hours. Special topics in one or more aspects of circuits and embedded systems, such as digital, analog, mixed-signal, and radio frequency integrated circuits (RF ICs); electronic design automation; wireless communication circuits and systems; embedded processor architectures; embedded software; distributed sensor and actuator networks; robotics; and embedded security. May be repeated for credit with topic change. S/U or letter grading.

209BS. Seminar: Circuits and Embedded Systems. (2 to 4) Seminar, two to four hours; outside study, four to eight hours. Seminars and discussions on current and advanced topics in one or more aspects of circuits and embedded systems, such as digital, analog, mixed-signal, and radio frequency integrated circuits (RF ICs); electronic design automation; wireless communication circuits and systems; embedded processor architectures; embedded software; distributed sensor and actuator networks; robotics; and embedded security. May be repeated for credit with topic change. S/U grading.

210A. Adaptive Filtering. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 113, 131B, Mathematics 115A. Optimal filtering and estimation, Wiener filters, linear prediction. Steepest descent and stochastic gradient algorithms. Frequency-domain adaptive filters. Method of least squares, recursive least squares, fast fixed-order and order-re-

ursive (lattice) filters. Misadjustment, convergence, and tracking analyses, stability issues, finite precision effects. Connections with Kalman filtering. Nonlinear adaptive filters. Letter grading.

210B. Optimal Linear Estimation. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 113, 131B, 210A, Mathematics 115A. Unified treatment of fundamental concepts and basic notions in adaptive filtering, Wiener filtering, Kalman filtering, and H_∞ filtering. Emphasis on geometric, equivalence, and duality arguments. Development of array methods and fast algorithms. Discussion of practical issues. Examples of applications from fields of signal processing, communications, biomedical engineering, finance, and control. Letter grading.

211A. Digital Image Processing I. (4) Lecture, three hours; laboratory, four hours; outside study, five hours. Preparation: computer programming experience. Requisite: course 113. Fundamentals of digital image processing theory and techniques. Topics include two-dimensional linear system theory, image transforms, and enhancement. Concepts covered in lecture applied in computer laboratory assignments. Letter grading.

211B. Digital Image Processing II. (4) Lecture, three hours; laboratory, four hours; outside study, five hours. Requisite: course 211A. Advanced digital image processing theory and techniques. Topics include modeling, restoration, still-frame and video image compression, tomographic imaging, and multiresolution analysis using wavelet transforms. Letter grading.

212A. Theory and Design of Digital Filters. (4) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisite: course 113. Approximation of filter specifications. Use of design charts. Structures for recursive digital filters. FIR filter design techniques. Comparison of IIR and FIR structures. Implementation of digital filters. Limit cycles. Overflow oscillations. Discrete random signals. Wave digital filters. Letter grading.

212B. Multirate Systems and Filter Banks. (4) Lecture, three hours; outside study, nine hours. Requisite: course 212A. Fundamentals of multirate systems; polyphase representation; multistage implementations; applications of multirate systems; maximally decimated filter banks; perfect reconstruction systems; paraunitary filter banks; wavelet transform and its relation to multirate filter banks. Letter grading.

213A. Advanced Digital Signal Processing Circuit Design. (4) Lecture, three hours; outside study, nine hours. Requisite: course 212A. Digital filter design and optimization tools, architectures for digital signal processing circuits; integrated circuit modules for digital signal processing; programmable signal processors; CAD tools and cell libraries for application-specific integrated circuit design; case studies of speech and image processing circuits. Letter grading.

M214A. Digital Speech Processing. (4) (Same as Biomedical Engineering M214A.) Lecture, three hours; laboratory, two hours; outside study, seven hours. Requisite: course 113. Theory and applications of digital processing of speech signals. Mathematical models of human speech production and perception mechanisms, speech analysis/synthesis. Techniques include linear prediction, filter-bank models, and homomorphic filtering. Applications to speech synthesis, automatic recognition, and hearing aids. Letter grading.

214B. Advanced Topics in Speech Processing. (4) Lecture, three hours; computer assignments, two hours; outside study, seven hours. Requisite: course M214A. Advanced techniques used in various speech-processing applications, with focus on speech recognition by humans and machine. Physiology and psychoacoustics of human perception. Dynamic Time Warping (DTW) and Hidden Markov Models (HMM) for automatic speech recognition systems, pattern classification, and search algorithms. Aids for hearing impaired. Letter grading.

215A. Analog Integrated Circuit Design. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 115B. Analysis and design of analog integrated circuits. MOS and bipolar de-

vice structures and models, single-stage and differential amplifiers, noise, feedback, operational amplifiers, offset and distortion, sampling devices and discrete-time circuits, bandgap references. Letter grading.

215B. Advanced Digital Integrated Circuits. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 115C, M216A. Analysis and comparison of modern logic families. VLSI memories (SRAM, DRAM, and ROMs). Accuracy of various simulation models and simulation methods for digital circuits. Letter grading.

215C. Analysis and Design of RF Circuits and Systems. (4) Lecture, four hours; outside study, eight hours. Requisite: course 215A. Principles of RF circuit and system design, with emphasis on monolithic implementation in VLSI technologies. Basic concepts, communications background, transceiver architectures, low-noise amplifiers and mixers, oscillators, frequency synthesizers, power amplifiers. Letter grading.

215D. Analog Microsystem Design. (4) Lecture, four hours; outside study, eight hours. Requisite: course 215A. Analysis and design of data conversion interfaces and filters. Sampling circuits and architectures, D/A conversion techniques, A/D converter architectures, building blocks, precision techniques, discrete- and continuous-time filters. Letter grading.

215E. Signaling and Synchronization. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 215A, M216A. Analysis and design of circuits for synchronization and communication for VLSI systems. Use of both digital and analog design techniques to improve data rate of electronics between functional blocks, chips, and systems. Advanced clocking methodologies, phase-locked loop design for clock generation, and high-performance wire-line transmitters, receivers, and timing recovery circuits. Letter grading.

M216A. Design of VLSI Circuits and Systems. (4) (Same as Computer Science M258A.) Lecture, four hours; discussion, one hour; laboratory, four hours; outside study, three hours. Requisites: courses M16 or Computer Science M51A, and 115A. Recommended: course 115C. LSI/VLSI design and application in computer systems. Fundamental design techniques that can be used to implement complex integrated systems on chips. Letter grading.

216B. VLSI Signal Processing. (4) Lecture, four hours; outside study, eight hours. Advanced concepts in VLSI signal processing, with emphasis on architecture design and optimization within block-based description that can be mapped to hardware. Fundamental concepts from digital signal processing (DSP) theory, architecture, and circuit design applied to complex DSP algorithms in emerging applications for personal communications and healthcare. Letter grading.

M216C. LSI in Computer System Design. (4) (Same as Computer Science M258C.) Lecture, four hours; laboratory, four hours; outside study, four hours. Requisite: course M216A. LSI/VLSI design and application in computer systems. In-depth studies of VLSI architectures and VLSI design tools. Letter grading.

M217. Biomedical Imaging. (4) (Same as Biomedical Engineering M217.) Lecture, three hours; outside study, nine hours. Requisite: course 114 or 211A. Optical imaging modalities in biomedicine. Other nonoptical imaging modalities discussed briefly for comparison purposes. Letter grading.

218. Network Economics and Game Theory. (4) Lecture, four hours; outside study, eight hours. Discussion of how different cooperative and noncooperative games among agents can be constructed to model, analyze, optimize, and shape emerging interactions among users in different networks and system settings. How strategic agents can successfully compete with each other for limited and time-varying resources by optimizing their decision process and learning from their past interaction with other agents. To determine their optimal actions in these distributed, informationally decentralized environments, agents need to learn and model directly or implicitly other agents' responses to their actions. Discussion in de-

tail of several existing multiagent learning techniques that can be successfully deployed in multiagent systems. Letter grading.

221A. Physics of Semiconductor Devices I. (4) Lecture, four hours; outside study, eight hours. Physical principles and design considerations of junction devices. Letter grading.

221B. Physics of Semiconductor Devices II. (4) Lecture, four hours; outside study, eight hours. Principles and design considerations of field effect devices and charge-coupled devices. Letter grading.

221C. Microwave Semiconductor Devices. (4) Lecture, four hours; outside study, eight hours. Physical principles and design considerations of microwave solid-state devices: Schottky barrier mixer diodes, IMPATT diodes, transferred electron devices, tunnel diodes, microwave transistors. Letter grading.

222. Integrated Circuits Fabrication Processes. (4) Lecture, four hours; outside study, eight hours. Requisite: course 2. Principles of integrated circuits fabrication processes. Technological limitations of integrated circuits design. Topics include bulk crystal and epitaxial growth, thermal oxidation, diffusion, ion-implantation, chemical vapor deposition, dry etching, lithography, and metallization. Introduction of advanced process simulation tools. Letter grading.

223. Solid-State Electronics I. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 124, 270. Energy band theory, electronic band structure of various elementary, compound, and alloy semiconductors, defects in semiconductors. Recombination mechanisms, transport properties. Letter grading.

224. Solid-State Electronics II. (4) Lecture, four hours; outside study, eight hours. Requisite: course 223. Techniques to solve Boltzmann transport equation, various scattering mechanisms in semiconductors, high field transport properties in semiconductors, Monte Carlo method in transport. Optical properties. Letter grading.

225. Physics of Semiconductor Nanostructures and Devices. (4) Lecture, four hours; outside study, eight hours. Requisite: course 223. Theoretical methods for circulating electronics and optical properties of semiconductor structures. Quantum size effects and low-dimensional systems. Application to semiconductor nanometer scale devices, including negative resistance diodes, transistors, and detectors. Letter grading.

229. Seminar: Advanced Topics in Solid-State Electronics. (4) Seminar, four hours; outside study, eight hours. Requisites: courses 223, 224. Current research areas, such as radiation effects in semiconductor devices, diffusion in semiconductors, optical and microwave semiconductor devices, nonlinear optics, and electron emission. Letter grading.

229S. Advanced Electrical Engineering Seminar. (2) Seminar, two hours; outside study, six hours. Preparation: successful completion of Ph.D. major field examination. Seminar on current research topics in solid-state and quantum electronics (Section 1) or in electronic circuit theory and applications (Section 2). Students report on tutorial topic and on research topic in their dissertation area. May be repeated for credit. S/U grading.

230A. Estimation and Detection in Communication and Radar Engineering. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 131A. Applications of estimation and detection concepts in communication and radar engineering; random signal and noise characterizations by analytical and simulation methods; mean square (MS) and maximum likelihood (ML) estimations and algorithms; detection under ML, Bayes, and Neyman/Pearson (NP) criteria; signal-to-noise ratio (SNR) and error probability evaluations. Letter grading.

230B. Digital Communication Systems. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 132A, 230A. Basic concepts of digital communication systems; representation of bandpass waveforms; signal space analysis and optimum receivers in Gaussian noise; comparison of digital mod-

ulation methods; synchronization and adaptive equalization; applications to modern communication systems. Letter grading.

230C. Algorithms and Processing in Communication and Radar. (4) Lecture, four hours; outside study, eight hours. Requisite: course 230A. Concepts and implementations of digital signal processing algorithms in communication and radar systems. Optimum dynamic range scaling for random data. Algorithms for fast convolution and transform. Spectral estimation algorithms. Parallel processing, VLSI algorithms, and systolic arrays. Letter grading.

230D. Signal Processing in Communications. (4) Lecture, four hours; outside study, eight hours. Requisite: course 230C. Basic digital signal processing techniques for estimation and detection of signals in communication and radar systems. Optimization of dynamic range, quantization, and state constraints; DFT, convolution, FFT, NTT, Winograd DFT, systolic array; spectral analysis-windowing, AR, and ARMA; system applications. Letter grading.

231A. Information Theory: Channel and Source Coding. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 131A. Fundamental limits on compression and transmission of information. Topics include limits and algorithms for lossless data compression, channel capacity, rate versus distortion in lossy compression, and information theory for multiple users. Letter grading.

231E. Channel Coding Theory. (4) Lecture, four hours; outside study, eight hours. Requisite: course 131A. Fundamentals of error control codes and decoding algorithms. Topics include block codes, convolutional codes, trellis codes, and turbo codes. Letter grading.

232A. Stochastic Modeling with Applications to Telecommunication Systems. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 131A. Introduction to stochastic processes as applied to study of telecommunication systems and traffic engineering. Renewal theory; discrete-time Markov chains; continuous-time Markov jump processes. Applications to traffic and queueing analysis of basic telecommunication system models. Letter grading.

232B. Telecommunication Switching and Queueing Systems. (4) Lecture, four hours; outside study, eight hours. Requisite: course 232A. Queue modeling and analysis with applications to space-time digital switching systems and to integrated-service telecommunication systems. Fundamentals of traffic engineering and queueing theory. Queue size, waiting time, busy period, blocking, and stochastic process analysis for Markovian and non-Markovian models. Letter grading.

232C. Telecommunication Architecture and Networks. (4) Lecture, four hours; outside study, eight hours. Requisite: course 232B. Analysis and design of integrated-service telecommunication networks and multiple-access procedures. Stochastic analysis of priority-based queueing system models. Queueing networks; network protocol architectures; error control; routing, flow, and access control. Applications to local-area, packet-radio, satellite, and computer communication networks. Letter grading.

232D. Telecommunication Networks and Multiple-Access Communications. (4) Lecture, four hours; outside study, eight hours. Requisite: course 232B. Performance analysis and design of telecommunication networks and multiple-access communication systems. Topics include architectures, multiplexing and multiple-access, message delays, error/flow control, switching, routing, protocols. Applications to local-area, packet-radio, local-distribution, computer and satellite communication networks. Letter grading.

232E. Graphs and Network Flows. (4) Lecture, four hours; outside study, eight hours. Requisite: course 136. Solution to analysis and synthesis problems that may be formulated as flow problems in capacity constrained (or cost constrained) networks. Development of tools of network flow theory using graph theoretic methods; application to communication, transportation, and transmission problems. Letter grading.

233. Wireless Communications Systems. (4) (Formerly numbered 233B.) Lecture, four hours; outside study, eight hours. Requisite: course 230B. Various aspects of physical layer and medium access design for wireless communications systems. Topics include wireless signal propagation and channel modeling, single carrier and spread spectrum modulation for wireless systems, diversity techniques, multiple-access schemes, transceiver design and effects of nonideal components, hardware partitioning issues. Case study highlights system level trade-offs. Letter grading.

236A. Linear Programming. (4) Lecture, four hours; outside study, eight hours. Requisite: Mathematics 115A or equivalent knowledge of linear algebra. Basic graduate course in linear optimization. Geometry of linear programming. Duality. Simplex method. Interior-point methods. Decomposition and large-scale linear programming. Quadratic programming and complementary pivot theory. Engineering applications. Introduction to integer linear programming and computational complexity theory. Letter grading.

236B. Convex Optimization. (4) Lecture, four hours; outside study, eight hours. Requisite: course 236A. Introduction to convex optimization and its applications. Convex sets, functions, and basics of convex analysis. Convex optimization problems (linear and quadratic programming, second-order cone and semidefinite programming, geometric programming). Lagrange duality and optimality conditions. Applications of convex optimization. Unconstrained minimization methods. Interior-point and cutting-plane algorithms. Introduction to nonlinear programming. Letter grading.

236C. Optimization Methods for Large-Scale Systems. (4) Lecture, four hours; outside study, eight hours. Requisite: course 236B. Theory and computational procedures for decomposing large-scale optimization problems: cutting-plane methods, column generation, decomposition algorithms. Techniques for global continuous optimization: branch-and-bound methods, reverse convex programming, bilinear and biconvex optimization, genetic algorithms, simulated annealing. Introduction to combinatorial optimization. Letter grading.

M237. Dynamic Programming. (4) (Same as Mechanical and Aerospace Engineering M276.) Lecture, four hours; outside study, eight hours. Recommended requisite: course 232A or 236A or 236B. Introduction to mathematical analysis of sequential decision processes. Finite horizon model in both deterministic and stochastic cases. Finite-state infinite horizon model. Methods of solution. Examples from inventory theory, finance, optimal control and estimation, Markov decision processes, combinatorial optimization, communications. Letter grading.

238. Multimedia Communications and Processing. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 113, 131A. Key concepts, principles, and algorithms of real-time multimedia communications and processing across heterogeneous Internet and wireless channels. Due to flexible and low-cost infrastructure, new networks and communication channels enable variety of delay-sensitive multimedia transmission applications and provide varying resources with limited support for quality of service required by delay-sensitive, bandwidth-intense, and loss-tolerant multimedia applications. New concepts, principles, theories, and practical solutions for cross-layer design that can provide optimal adaptation for time-varying channel characteristics, adaptive and delay-sensitive applications, and multiuser transmission environments. Letter grading.

239AS. Special Topics in Signals and Systems. (4) Lecture, four hours; outside study, eight hours. Special topics in one or more aspects of signals and systems, such as communications, control, image processing, information theory, multimedia, computer networking, optimization, speech processing, telecommunications, and VLSI signal processing. May be repeated for credit with topic change. S/U or letter grading.

239BS. Seminar: Signals and Systems. (2 to 4) Seminar, two to four hours; outside study, four to eight hours. Seminars and discussions on current and advanced topics in one or more aspects of signals and systems, such as communications, control, image processing, information theory, multimedia, computer networking, optimization, speech processing, telecommunications, and VLSI signal processing. May be repeated for credit with topic change. S/U grading.

M240A. Linear Dynamic Systems. (4) (Same as Chemical Engineering M280A and Mechanical and Aerospace Engineering M270A.) Lecture, four hours; outside study, eight hours. Requisite: course 141 or Mechanical and Aerospace Engineering 171A. State-space description of linear time-invariant (LTI) and time-varying (LTV) systems in continuous and discrete time. Linear algebra concepts such as eigenvalues and eigenvectors, singular values, Cayley/Hamilton theorem, Jordan form; solution of state equations; stability, controllability, observability, realizability, and minimality. Stabilization design via state feedback and observers; separation principle. Connections with transfer function techniques. Letter grading.

240B. Linear Optimal Control. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 141, M240A. Introduction to optimal control, with emphasis on detailed study of LQR, or linear regulators with quadratic cost criteria. Relationships to classical control system design. Letter grading.

M240C. Optimal Control. (4) (Same as Chemical Engineering M280C and Mechanical and Aerospace Engineering M270C.) Lecture, four hours; outside study, eight hours. Requisite: course 240B. Applications of variational methods, Pontryagin maximum principle, Hamilton/Jacobi/Bellman equation (dynamic programming) to optimal control of dynamic systems modeled by nonlinear ordinary differential equations. Letter grading.

241A. Stochastic Processes. (4) Lecture, four hours; outside study, eight hours. Requisite: course 131B. Random process models: basic concepts, properties. Stationary random processes: covariance and spectrum. Response of linear systems to random inputs: discrete-time and continuous-time models. Time averages and ergodic principle. Sampling principle and interpolation. Simulation of random processes. Letter grading.

241C. Stochastic Control. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 240B, 241B. Linear quadratic Gaussian theory of optimal feedback control of stochastic systems; discrete-time state-space models; sigma algebra equivalence and separation principle; dynamic programming; compensator design for time invariant systems; feedforward control and servomechanisms, extensions to nonlinear systems; applications to interception guidance, gust alleviation. Letter grading.

M242A. Nonlinear Dynamic Systems. (4) (Same as Chemical Engineering M282A and Mechanical and Aerospace Engineering M272A.) Lecture, four hours; outside study, eight hours. Requisite: course M240A or Chemical Engineering M280A or Mechanical and Aerospace Engineering M270A. State-space techniques for studying solutions of time-invariant and time-varying nonlinear dynamic systems with emphasis on stability. Lyapunov theory (including converse theorems), invariance, center manifold theorem, input-to-state stability and small-gain theorem. Letter grading.

243. Robust and Optimal Control by Convex Methods. (4) Lecture, four hours; outside study, eight hours. Requisite: course M240A. Multivariable robust control, including H₂ and H_∞ optimal control and robust performance analysis and synthesis against structured uncertainty. Emphasis on convex methods for analysis and design, in particular linear matrix inequality (LMI) approach to control. Letter grading.

M248S. Seminar: Systems, Dynamics, and Control Topics. (2) (Same as Chemical Engineering M297 and Mechanical and Aerospace Engineering M299A.) Seminar, two hours; outside study, six hours. Limited to graduate engineering students. Presentations of research topics by leading academic re-

searchers from fields of systems, dynamics, and control. Students who work in these fields present their papers and results. S/U grading.

CM250A. Introduction to Micromachining and Microelectromechanical Systems (MEMS). (4) (Same as Biomedical Engineering CM250A and Mechanical and Aerospace Engineering CM280A.) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: Chemistry 20A, 20L, Physics 1A, 1B, 1C, 4AL, 4BL. Corequisite: course CM250L. Introduction to micromachining technologies and microelectromechanical systems (MEMS). Methods of micromachining and how these methods can be used to produce variety of MEMS, including microstructures, microsensors, and microactuators. Students design microfabrication processes capable of achieving desired MEMS device. Concurrently scheduled with course CM150. Letter grading.

M250B. Microelectromechanical Systems (MEMS) Fabrication. (4) (Same as Biomedical Engineering M250B and Mechanical and Aerospace Engineering M280B.) Lecture, three hours; discussion, one hour; outside study, eight hours. Enforced requisite: course CM150 or CM250A. Advanced discussion of micromachining processes used to construct MEMS. Coverage of many lithographic, deposition, and etching processes, as well as their combination in process integration. Materials issues such as chemical resistance, corrosion, mechanical properties, and residual/intrinsic stress. Letter grading.

CM250L. Introduction to Micromachining and Microelectromechanical Systems (MEMS) Laboratory. (2) (Same as Biomedical Engineering CM250L and Mechanical and Aerospace Engineering CM280L.) Lecture, one hour; laboratory, four hours; outside study, one hour. Requisites: Chemistry 20A, 20L, Physics 1A, 1B, 1C, 4AL, 4BL. Corequisite: course CM250A. Hands-on introduction to micromachining technologies and microelectromechanical systems (MEMS) laboratory. Methods of micromachining and how these methods can be used to produce variety of MEMS, including microstructures, microsensors, and microactuators. Students go through process of fabricating MEMS device. Concurrently scheduled with course CM150L. Letter grading.

M252. Microelectromechanical Systems (MEMS) Device Physics and Design. (4) (Formerly numbered M250B.) (Same as Biomedical Engineering M252 and Mechanical and Aerospace Engineering M282.) Lecture, four hours; outside study, eight hours. Introduction to MEMS design. Design methods, design rules, sensing and actuation mechanisms, microsensors, and microactuators. Designing MEMS to be produced with both foundry and nonfoundry processes. Computer-aided design for MEMS. Design project required. Letter grading.

M255. Neuroengineering. (4) (Same as Biomedical Engineering M260 and Neuroscience M206.) Lecture, four hours; laboratory, three hours; outside study, five hours. Requisites: Mathematics 32A, Physics 1B or 6B. Introduction to principles and technologies of bioelectricity and neural signal recording, processing, and stimulation. Topics include bioelectricity, electrophysiology (action potentials, local field potentials, EEG, ECG), intracellular and extracellular recording, microelectrode technology, neural signal processing (neural signal frequency bands, filtering, spike detection, spike sorting, stimulation artifact removal), brain-computer interfaces, deep-brain stimulation, and prosthetics. Letter grading.

M256A-M256B-M256C. Evaluation of Research Literature in Neuroengineering. (2-2-2) (Same as Biomedical Engineering M261A-M261B-M261C and Neuroscience M212A-M212B-M212C.) Discussion, two hours; outside study, four hours. Critical discussion and analysis of current literature related to neuroengineering research. S/U grading.

M257. Nanoscience and Technology. (4) (Same as Mechanical and Aerospace Engineering M287.) Lecture, four hours; outside study, eight hours. Introduction to fundamentals of nanoscale science and technology. Basic physical principles, quantum mechanics, chemical bonding and nanostructures, top-down

and bottom-up (self-assembly) nanofabrication; nano-characterization; nanomaterials, nanoelectronics, and nanobio-detection technology. Introduction to new knowledge and techniques in nano areas to understand scientific principles behind nanotechnology and inspire students to create new ideas in multidisciplinary nano areas. Letter grading.

260A. Advanced Engineering Electrodynamics. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 161, 162A. Advanced treatment of concepts in electrodynamics and their applications to modern engineering problems. Waves in anisotropic, inhomogeneous, and dispersive media. Guided waves in bounded and unbounded regions. Radiation and diffraction, including optical phenomena. Partially coherent waves, statistical media. Letter grading.

260B. Advanced Engineering Electrodynamics. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 161, 162A, 260A. Advanced treatment of concepts and numerical techniques in electrodynamics and their applications to modern engineering problems. Differential geometry of curves and surfaces. Geometrical optics and geometrical theory of diffraction. Physical optics techniques. Asymptotic techniques and uniform theories. Integral equations in electromagnetics. Numerical techniques based on method of moments. Letter grading.

261. Microwave and Millimeter Wave Circuits. (4) Lecture, four hours; outside study, eight hours. Requisite: course 163A. Rectangular and circular waveguides, microstrip, stripline, finline, and dielectric waveguide distributed circuits, with applications in microwave and millimeter wave integrated circuits. Substrate materials, surface wave phenomena. Analytical methods for discontinuity effects. Design of passive microwave and millimeter wave circuits. Letter grading.

262. Antenna Theory and Design. (4) Lecture, four hours; outside study, eight hours. Requisite: course 162A. Antenna patterns. Sum and difference patterns. Optimum designs for rectangular and circular apertures. Arbitrary side lobe topography. Discrete arrays. Mutual coupling. Design of feeding networks. Letter grading.

263. Reflector Antennas Synthesis, Analysis, and Measurement. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 260A, 260B. Reflector pattern analysis techniques. Single and multireflector antenna configurations. Reflector synthesis techniques. Reflector feeds. Reflector tolerance studies, including systematic and random errors. Array-fed reflector antennas. Near-field measurement techniques. Compact range concepts. Microwave diagnostic techniques. Modern satellite and ground antenna applications. Letter grading.

266. Computational Methods for Electromagnetics. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 162A, 163A. Computational techniques for partial differential and integral equations: finite-difference, finite-element, method of moments. Applications include transmission lines, resonators, integrated circuits, solid-state device modeling, electromagnetic scattering, and antennas. Letter grading.

270. Applied Quantum Mechanics. (4) Lecture, four hours; outside study, eight hours. Preparation: modern physics (or course 123A), linear algebra, and ordinary differential equations courses. Principles of quantum mechanics for applications in lasers, solid-state physics, and nonlinear optics. Topics include eigenfunction expansions, observables, Schrödinger equation, uncertainty principle, central force problems, Hilbert spaces, WKB approximation, matrix mechanics, density matrix formalism, and radiation theory. Letter grading.

271. Classical Laser Theory. (4) Lecture, four hours; outside study, eight hours. Requisite: course 172. Microscopic and macroscopic laser phenomena and propagation of optical pulses using classical formalism. Letter grading.

272. Dynamics of Lasers. (4) Lecture, four hours; outside study, eight hours. Requisite: course 271. Ultrashort laser pulse characteristics, generation, and measurement. Gain switching, Q switching, cavity

dumping, active and passive mode locking. Pulse compression and soliton pulse formation. Nonlinear pulse generation: soliton laser, additive-pulse mode locking, and parametric oscillators. Pulse measurement techniques. Letter grading.

273. Nonlinear Optics. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 172, 270. Nonlinear optical susceptibilities. Coupled-wave formulation. Crystal optics, electro-optics, and magneto-optics. Sum- and difference-frequency generation. Harmonic and parametric generation. Stimulated Raman and Brillouin scattering. Four-wave mixing and phase conjugation. Field-induced index changes and self-phase modulation. Letter grading.

274. Fiber Optic System Design. (4) Lecture, three hours; outside study, nine hours. Requisites: courses 173D and/or 174. Top-down introduction to physical layer design in fiber optic communication systems, including Telecom, Datacom, and CATV. Fundamentals of digital and analog optical communication systems, fiber transmission characteristics, and optical modulation techniques, including direct and external modulation and computer-aided design. Architectural-level design of fiber optic transceiver circuits, including pre-amplifier, quantizer, clock and data recovery, laser driver, and predistortion circuits. Letter grading.

279AS. Special Topics in Physical and Wave Electronics. (4) Lecture, four hours; outside study, eight hours. Special topics in one or more aspects of physical and wave electronics, such as electromagnetics, microwave and millimeter wave circuits, photonics and optoelectronics, plasma electronics, microelectromechanical systems, solid state, and nanotechnology. May be repeated for credit with topic change. S/U or letter grading.

279BS. Seminar: Physical and Wave Electronics. (2 to 4) Seminar, two to four hours; outside study, four to eight hours. Seminars and discussions on current and advanced topics in one or more aspects of physical and wave electronics, such as electromagnetics, microwave and millimeter wave circuits, photonics and optoelectronics, plasma electronics, microelectromechanical systems, solid state, and nanotechnology. May be repeated for credit with topic change. S/U grading.

285A. Plasma Waves and Instabilities. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 101, and M185 or Physics M122. Wave phenomena in plasmas described by macroscopic fluid equations. Microwave propagation, plasma oscillations, ion acoustic waves, cyclotron waves, hydro-magnetic waves, drift waves. Rayleigh/Taylor, Kelvin/Helmholtz, universal, and streaming instabilities. Application to experiments in fully and partially ionized gases. Letter grading.

285B. Advanced Plasma Waves and Instabilities. (4) Lecture, four hours; outside study, eight hours. Requisites: courses M185, and 285A or Physics 222A. Interaction of intense electromagnetic waves with plasmas: waves in inhomogeneous and bounded plasmas, nonlinear wave coupling and damping, parametric instabilities, anomalous resistivity, shock waves, echoes, laser heating. Emphasis on experimental considerations and techniques. Letter grading.

M287. Fusion Plasma Physics and Analysis. (4) (Same as Mechanical and Aerospace Engineering M237B.) Lecture, four hours; outside study, eight hours. Requisite: course M185. Fundamentals of plasmas at thermonuclear burning conditions. Fokker-Planck equation and applications to heating by neutral beams, RF, and fusion reaction products. Bremsstrahlung, synchrotron, and atomic radiation processes. Plasma surface interactions. Fluid description of burning plasma. Dynamics, stability, and control. Applications in tokamaks, tandem mirrors, and alternate concepts. Letter grading.

295. Technical Writing for Electrical Engineers. (2) Lecture, two hours. Designed for electrical engineering Ph.D. students. Opportunity for students to improve technical writing skills by revising conference, technical, and journal papers and practicing writing about their work for undergraduate audience (potential students), engineers outside their specific fields,

and nonscientists (colleagues with less expertise in field and policymakers). Students write in variety of genres, all related to their professional development as electrical engineers. Emphasis on writing as vital way to communicate precise technical and professional information in distinct contexts, directly resulting in specific outcomes. S/U grading.

296. Seminar: Research Topics in Electrical Engineering. (2) Seminar, two hours; outside study, four hours. Advanced study and analysis of current topics in electrical engineering. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. S/U grading.

297. Seminar Series: Electrical Engineering. (1) Seminar, 90 minutes; outside study, 90 minutes. Limited to graduate electrical engineering students. Weekly seminars and discussion by invited speakers on research topics of heightened interest. S/U grading.

298. Seminar: Engineering. (2 to 4) Seminar, to be arranged. Limited to graduate electrical engineering students. Seminars may be organized in advanced technical fields. If appropriate, field trips may be arranged. May be repeated with topic change. S/U or letter grading.

299. M.S. Project Seminar. (4) Seminar, to be arranged. Required of all M.S. students not in thesis option. Supervised research in small groups or individually under guidance of faculty mentor. Regular meetings, culminating report, and presentation required. Individual contract required; enrollment petitions available in Office of Graduate Student Affairs. Letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

475C. Manufacturing Systems. (4) Lecture, four hours; outside study, eight hours. Modeling and analysis of manufacturing systems. Assembly and transfer lines. Facility layout and design. Group technology and flexible manufacturing systems. Planning and scheduling. Task management, machine setup, and operation sequencing. Manufacturing system models. Manufacturing information systems. Social, economic, environmental, and regulatory issues. Letter grading.

596. Directed Individual or Tutorial Studies. (2 to 8) Tutorial, to be arranged. Limited to graduate electrical engineering students. Petition forms to request enrollment may be obtained from assistant dean, Graduate Studies. Supervised investigation of advanced technical problems. S/U grading.

597A. Preparation for M.S. Comprehensive Examination. (2 to 12) Tutorial, to be arranged. Limited to graduate electrical engineering students. Reading and preparation for M.S. comprehensive examination. S/U grading.

597B. Preparation for Ph.D. Preliminary Examinations. (2 to 16) Tutorial, to be arranged. Limited to graduate electrical engineering students. S/U grading.

597C. Preparation for Ph.D. Oral Qualifying Examination. (2 to 16) Tutorial, to be arranged. Limited to graduate electrical engineering students. Preparation for oral qualifying examination, including preliminary research on dissertation. S/U grading.

598. Research for and Preparation of M.S. Thesis. (2 to 12) Tutorial, to be arranged. Limited to graduate electrical engineering students. Supervised independent research for M.S. candidates, including thesis prospectus. S/U grading.

599. Research for and Preparation of Ph.D. Dissertation. (2 to 16) Tutorial, to be arranged. Limited to graduate electrical engineering students. Usually taken after students have been advanced to candidacy. S/U grading.

ENGINEERING SCHOOLWIDE PROGRAMS

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Professors Emeriti

Edward P. Coleman, Ph.D.
Allen B. Rosenstein, Ph.D.
Bonham Spence-Campbell, E.E.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Henry Samueli School of Engineering and Applied Science offers the Master of Engineering (M.Engr.) degree (through the Engineering Executive Program), Master of Science (M.S.) online degree in Engineering, and Engineer (Engr.) degree as schoolwide degrees. A certificate of specialization is available in all areas of specialization, except computer science.

Engineering

Lower Division Courses

M10A. Introduction to Complex Systems Science. (5) (Same as Human Complex Systems M10A.) Lecture, four hours. How macroscopic patterns emerge dynamically from local interactions of large number of interdependent (often heterogeneous) entities, without global design or central control. Such emergent order, whose explanation cannot be reduced to explanations at level of individual entities, is ubiquitous in biology and human social collectives, but also exists in certain physical processes such as earthquakes and some chemical reactions. Complexity also deals with how such systems undergo sudden changes, including catastrophic breakdowns, in absence of external force or central influence. Key aspect of biological and social collectives is their nature as complex adaptive systems, where individuals and groups adjust their behavior to external conditions. In biological and social systems, complexity science goes beyond traditional mathematics and statistics in its use of multi-agent computational models that better capture these complex, adaptive, and self-organizing phenomena. Letter grading.

87. Introduction to Engineering Disciplines. (4) Lecture, four hours; discussion, four hours; outside study, four hours. Introduction to engineering as professional opportunity for freshman students by exploring difference between engineering disciplines and functions engineers perform. Development of skills and techniques for academic excellence through team process. Investigation of national need underly-

ing current effort to increase participation of historically underrepresented groups in U.S. technological work force. Letter grading.

95. Internship Studies in Engineering. (2 to 4) Tutorial, two to four hours. Limited to freshmen/sophomores. Internship studies course supervised by associate dean or designated faculty members. Further supervision to be provided by organization for which students are doing internship. Students may be required to meet on regular basis with instructor and provide periodic reports of their experience. May not be applied toward major requirements. Normally, only 4 units of internship are allowed. Individual contract with associate dean required. P/NP grading.

98. What Students Need to Know about Careers in Engineering. (2) Seminar, two hours. Introduction to skills and aptitudes that most engineers require in their careers and description of big picture of engineering careers. Integrating framework provided to relate specifics of engineering courses to real world of engineer and roadmap of extracurricular activity that strengthens skills needed to acquire good jobs and achieve career success. P/NP grading.

Upper Division Courses

M101. Principles of Nanoscience and Nanotechnology. (4) (Same as Materials Science M105.) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: Chemistry 20, and Electrical Engineering 1 or Physics 1C. Introduction to underlying science encompassing structure, properties, and fabrication of technologically important nanoscale systems. New phenomena that emerge in very small systems (typically with feature sizes below few hundred nanometers) explained using basic concepts from physics and chemistry. Chemical, optical, and electronic properties, electron transport, structural stability, self-assembly, templated assembly and applications of various nanostructures such as quantum dots, nanoparticles, quantum wires, quantum wells and multilayers, carbon nanotubes. Letter grading.

102. Synthetic Biosystems and Nanosystems Design. (4) Lecture, four hours; outside study, eight hours. Requisites: course M101, Life Sciences 3. Introduction to current progress in engineering to integrate biosciences and nanosciences into synthetic systems, where biological components are reengineered and rewired to perform desirable functions in both intracellular and cell-free environments. Discussion of basic technologies and systems analysis that deal with dynamic behavior, noise, and uncertainties. Design project in which students are challenged to design novel biosystems and nanosystems for non-trivial task required. Letter grading.

103. Environmental Nanotechnology: Implications and Applications. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Recommended requisite: course M101. Introduction to potential implications of nanotechnology to environmental systems as well as potential application of nanotechnology to environmental protection. Technical contents include three multidisciplinary areas: (1) physical, chemical, and biological properties of nanomaterials, (2) transport, reactivity, and toxicity of nanoscale materials in natural environmental systems, and (3) use of nanotechnology for energy and water production, plus environmental protection, monitoring, and remediation. Letter grading.

110. Introduction to Technology Management and Economics for Engineers. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Fundamental principles of micro-level (individual, firm, and industry) and macro-level (government, international) economics as they relate to technology management. How individuals, firms, and governments impact successful commercialization of high technology products and services. Letter grading.

111. Introduction to Finance and Marketing for Engineers. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Critical components of finance and marketing research and practice as they impact management of technology commercialization. Internal (within firm) and external (in market-

place) marketing and financing of high-technology innovation. Concepts include present value, future value, discounted cash flow, internal rate of return, return on assets, return on equity, return on investment, interest rates, cost of capital, and product, price, positioning, and promotion. Use of market research, segmentation, and forecasting in management of technological innovation. Letter grading.

112. Laboratory to Market, Entrepreneurship for Engineers. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Critical components of entrepreneurship, finance, marketing, human resources, and accounting disciplines as they impact management of technology commercialization. Topics include intellectual property management, team building, market forecasting, and entrepreneurial finance. Students work in small teams studying technology management plans to bring new technologies to market. Students select from set of available technology concepts, many generated at UCLA, that are in need of plans for movement from laboratory to market. Letter grading.

113. Product Strategy. (4) Lecture, four hours; outside study, eight hours. Designed for juniors/seniors. Introduction to current management concept of product development. Topics include product strategy, product platform, and product lines; competitive strategy, vectors of differentiation, product pricing, first-to-market versus fast-follower; growth strategy, growth through acquisition, and new ventures; product portfolio management. Case studies, class projects, group discussions, and guest lectures by speakers from industry. Letter grading.

180. Engineering of Complex Systems. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Designed for junior/senior engineering majors. Holistic view of engineering discipline, covering lifecycle of engineering, processes, and techniques used in industry today. Multidisciplinary systems engineering perspective in which aspects of electrical, mechanical, material, and software engineering are incorporated. Three specific case studies in communication, sensor, and processing systems included to help students understand these concepts. Special attention paid to link material covered to engineering curriculum offered by UCLA to help students integrate and enhance their understanding of knowledge already acquired. Motivation of students to continue their learning and reinforce lifelong learning habits. Letter grading.

183EW. Engineering and Society. (4) (Formerly numbered 183.) Lecture, four hours; discussion, three hours; outside study, five hours. Limited to sophomore/junior/senior engineering students. Professional and ethical considerations in practice of engineering. Impact of technology on society and on development of moral and ethical values. Contemporary environmental, biological, legal, and other issues created by new technologies. Emphasis on research and writing within engineering environments. Writing and revision of about 20 pages total, including two individual technical essays and one team-written research report. Readings address technical issues and writing form. Satisfies engineering writing requirement. Letter grading.

185EW. Art of Engineering Endeavors. (4) (Formerly numbered 185.) Lecture, four hours; discussion, three hours; outside study, five hours. Designed for juniors/senior engineering students. Nontechnical skills and experiences necessary for engineering career success. Importance of group dynamics in engineering practice. Teamwork and effective group skills in engineering environments. Organization and control of multidisciplinary complex engineering projects. Forms of leadership and qualities and characteristics of effective leaders. How engineering, computer sciences, and technology relate to major ethical and social issues. Societal demands on practice of engineering. Emphasis on research and writing in engineering environments. Satisfies engineering writing requirement. Letter grading.

188. Special Courses in Engineering. (4) Seminar, four hours; outside study, eight hours. Special topics in engineering for undergraduate students taught on experimental or temporary basis, such as those

taught by resident and visiting faculty members. May be repeated for credit with topic or instructor change. Letter grading.

195. Internship Studies in Engineering. (2 to 4) Tutorial, two to four hours. Limited to juniors/seniors. Internship studies course supervised by associate dean or designated faculty members. Further supervision to be provided by organization for which students are doing internship. Students may be required to meet on regular basis with instructor and provide periodic reports of their experience. May not be applied toward major requirements. Normally, only 4 units of internship are allowed. Individual contract with associate dean required. P/NP grading.

199. Directed Research in Engineering. (2 to 8) Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit with school approval. Individual contract required; enrollment petitions available in Office of Academic and Student Affairs. Letter grading.

Graduate Courses

200. Program Management Principles for Engineers and Professionals. (4) Lecture, four hours; outside study, eight hours. Designed for graduate students. Practical review of necessary processes and procedures to successfully manage technology programs. Review of fundamentals of program planning, organizational structure, implementation, and performance tracking methods to provide program manager with necessary information to support decision-making process that provides high-quality products on time and within budget. Letter grading.

201. Systems Engineering. (4) Lecture, four hours; outside study, eight hours. Designed for graduate students. Practical review of major elements of system engineering process. Coverage of key elements: system requirements and flow down, product development cycle, functional analysis, system synthesis and trade studies, budget allocations, risk management metrics, review and audit activities and documentation. Letter grading.

202. Reliability, Maintainability, and Supportability. (4) Lecture, four hours; outside study, eight hours. Requisite: course 201. Designed for graduate students with one to two years work experience. Integrated logistic support (ILS) is major driver of system life-cycle cost and one key element of system engineering activities. Overview of engineering disciplines critical to this function—reliability, maintainability, and supportability—and their relationships, taught using probability theory. Topics also include fault detections and isolations and parts obsolescence. Discussion of 6-sigma process, one effective design and manufacturing methodology, to ensure system reliability, maintainability, and supportability. Letter grading.

203. System Architecture. (4) Lecture, four hours; outside study, eight hours. Requisite: course 201. Designed for graduate students with B.S. degrees in engineering or science and one to two years work experience in selected domain. Art and science of architecting. Introduction to architecting methodology—paradigm and tools. Principles of architecting through analysis of architecture designs of major existing systems. Discussion of selected elements of architectural practices, such as representation models, design progression, and architecture frameworks. Examination of professionalization of system architecting. Letter grading.

215. Entrepreneurship for Engineers. (4) (Formerly numbered 210.) Lecture, four hours. Limited to graduate engineering students. Topics in starting and developing high-tech enterprises and intended for students who wish to complement their technical education with introduction to entrepreneurship. Letter grading.

299. Capstone Project. (4) Activity, 10 hours. Preparation: completion of minimum of four 200-level courses in online M.S. program. Project course that satisfies UCLA final comprehensive examination requirement of M.S. online degree in Engineering. Project is complet-

ed under individual guidance from UCLA Engineering faculty member and incorporates advanced knowledge learned in M.S. program of study. Letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

470A-470D. Engineer in Technical Environment. (3 each) Lecture, three hours. Limited to Engineering Executive Program students. Theory and application of quantitative methods in analysis and synthesis of engineering systems for purpose of making management decisions. Optimization of outputs with respect to dollar costs, time, material, energy, information, and manpower. Case studies and individual projects. S/U or letter grading.

471A-471B-471C. Engineer in General Environment. (3-3-1.5) Lecture, three hours (courses 471A, 471B) and 90 minutes (course 471C). Limited to Engineering Executive Program students. Influences of human relations, laws, social sciences, humanities, and fine arts on development and utilization of natural and human resources. Interaction of technology and society past, present, and future. Change agents and resistance to change. S/U or letter (471A) grading; In Progress (471B) and S/U or letter (471C) grading.

472A-472D. Engineer in Business Environment. (3-3-3-1.5) Lecture, three hours (courses 472A, 472B, 472C) and 90 minutes (course 472D). Limited to Engineering Executive Program students. Language of business for engineering executive. Accounting, finance, business economics, business law, and marketing. Laboratory in organization and management problem solving. Analysis of actual business problems of firm, community, and nation, provided through cooperation and participation with California business corporations and government agencies. In Progress (472A, 472C) and S/U or letter grading (credit to be given on completion of courses 472B and 472D).

473A-473B. Analysis and Synthesis of Large-Scale System. (3-3) Lecture, two and one-half hours. Limited to Engineering Executive Program students. Problem area of modern industry or government is selected as class project, and its solution is synthesized using quantitative tools and methods. Project also serves as laboratory in organization for goal-oriented technical group. In Progress (473A) and S/U (473B) grading.

495A. Teaching Assistant Training Seminar. (4) (Formerly numbered 495.) Seminar, four hours; outside study, eight hours. Preparation: appointment as teaching assistant. Limited to graduate engineering students. Seminar on communication of engineering principles, concepts, and methods, preparation, organization of material, presentation, use of visual aids, grading, advising, and rapport with students. S/U grading.

M495B. Supervised Teaching Preparation. (2) (Same as English Composition M495E.) Seminar, two hours. Required of all teaching assistants for Engineering writing courses not exempt by appropriate departmental or program training. Training and mentoring, with focus on composition pedagogy, assessment of student writing, guidance of revision process, and specialized writing problems that may occur in engineering writing contexts. Practical concerns of preparing students to write course assignments, marking and grading essays, and conducting peer reviews and conferences. S/U grading.

M495C. Supervised Teaching Preparation. (2) (Same as English Composition M495F.) Seminar, one hour. Requisite: course M495B. Required of all teaching assistants in their initial term of teaching Engineering writing courses. Mentoring in group and individual meetings. Continued focus on composition pedagogy, assessment of student writing, guidance of revision process, and specialized writing problems that may occur in engineering writing contexts. Practical concerns of preparing students to write course assignments, marking and grading essays, and conducting peer reviews and conferences. S/U grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

ENGLISH

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Karen E. Rowe, Ph.D.

Mark I. Seltzer, Ph.D. (*Evan Frankel Endowed Professor of English*)

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Gerald J. Goldberg, Ph.D.

Christopher W. Grose, Ph.D.

George R. Guffey, Ph.D.

Janet R. Hadda, Ph.D.

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Gwin Jack Kolb, Ph.D.

Verdel A. Kolve, Ph.D.

Richard A. Lanham, Ph.D.

Richard D. Lehan, Ph.D.

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 Alan H. Roper, Ph.D.
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 William D. Schaefer, Ph.D.
 Paul R. Sellin, Ph.D.
 Paul D. Sheats, Ph.D.
 Eric J. Sundquist, Ph.D. (*UCLA Foundation Professor Emeritus*)
 Peter L. Thorslev, Jr., Ph.D.
 Alexander Welsh, Ph.D.
 Thomas R. Wortham, Ph.D.

Associate Professors

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 Lowell Gallagher, Ph.D.
 Yogita Goyal, Ph.D.
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 Sianne Ngai, Ph.D.
 Kenneth Reinhard, Ph.D.

Assistant Professors

Matthew N. Fisher, Ph.D.
 Sarah T. Kareem, Ph.D.
 Marissa K. Lopez, Ph.D.
 Juan L. Sánchez, Ph.D.
 Brian K. Stefans, Ph.D.
 Caroline A. Streeter, Ph.D.

Senior Lecturers S.O.E.

Jerome Cushman, A.B., B.S.L.S., *Emeritus*
 Stephen J. Dickey, Ph.D.
 David Stuart Rodes, Ph.D., *Emeritus*

Senior Lecturers

Karen J. Cunningham, Ph.D.
 Christopher M. Mott, Ph.D.

Lecturers

Joseph A. Dimuro, Ph.D.
 Lawrence M. Grobel, B.A.

Adjunct Professors

Russell Leong, M.F.A.
 Carolyn See, Ph.D., *Emeritus*

Adjunct Associate Professor

Jeffrey L. Decker, Ph.D.

Adjunct Assistant Professor

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Scope and Objectives

The Department of English is dedicated to the study of the literatures and cultures of those parts of the world in which English is the primary language, and to the study of the history and structure of the English language itself. Although committed to no single method or approach, the department encourages an emphasis on British, American, and world literary history and requires of its undergraduate majors a firsthand acquaintance with many of the more influential writers who have helped during the past millennium to make English a global language that possesses richly diverse and highly influential literary cultures. Within the department, students are able to pursue a variety of approaches to the study of literary culture beyond the strictly historical—literary criticism, for example, or those that draw on the resources of such disciplines as sociology, psychology, and philosophy. Within the B.A. degree in En-

glish, qualified students may elect a concentration either in creative writing or in world literature. The department also offers a Bachelor of Arts degree in American Literature and Culture.

An understanding and appreciation of literature can furnish lifelong rewards. In addition to such personal benefits, the department seeks to impart the capacity to make balanced critical judgments and the ability to write the English language persuasively, with point and effect. Such skills are essential to success in a variety of professions for which the major in English can provide excellent preparation, including law, administration, business, and teaching.

A graduate program leading to the Master of Arts degree is available for students who wish to continue the study of literature at an advanced level. A parallel program continues to the Ph.D. degree. Because the Ph.D. program may require five years or more, it is intended only for qualified students who are seriously committed to advanced literary scholarship and, in some cases, to a career in college or university teaching.

Undergraduate Study

Students must have completed the Entry-Level Writing requirement before taking any courses in English (other than English Composition A or 2). For further information regarding Entry-Level Writing, see the Undergraduate Study section of this catalog.

Extra-Departmental Requirement in Foreign Literature or Foreign Language

All English majors must have completed either (1) level five or equivalent in any one foreign language or (2) level three or equivalent in one foreign language and two additional courses in foreign language or foreign literature, including foreign literature in translation (see course listings under Foreign Literature in Translation later in this section). Transfer students who have satisfied the College of Letters and Science foreign language requirement at the high school level through the IGETC program may satisfy the departmental requirement with five foreign literature in translation courses. The courses may be taken on a P/NP grading basis.

English B.A.

The Bachelor of Arts degree in English has concentrations in creative writing and in world literature. An international students program in English is also offered.

Preparation for the Major

Required: English Composition 3, English 4W or 4HW or 4WS, 10A, 10B, 10C taken in the stated sequence (each course is a requisite for the next course). A grade of C or better is required in each course.

Transfer Students

Transfer applicants to the English major with 90 or more units must complete the following introductory courses prior to admission to UCLA: one English composition course, one English

critical reading and writing course, one year of English literature survey courses, and two years of one foreign language or a combination of foreign language and foreign literature courses.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Twelve 4- or 5-unit upper division English courses, including 141A or 141B, 142A, 142B, 143, at least one course from each of the 150A through 157 series and M179A through 182C series, one course from 160 through 164, and five additional courses of which three must be selected from 140A, 140B, 142C, or 150A through 182C. Each course applied toward requirements for the major must be 4 or 5 units and be taken for a letter grade.

Students are encouraged to select additional electives from courses 140A through 182C. English 140A is especially recommended if they plan graduate work in literature. They may wish to select several courses in the relevant classical and postclassical foreign literatures and thought.

Optional Concentrations and Special Programs

The department offers optional concentrations in creative writing and in world literature, as well as a special program for international students. For all programs, the regular Preparation for the Major sequence as well as the departmental foreign language requirement apply. Because of the specialized nature of these programs, students should consult the departmental counselor before selecting and declaring one of them as a concentration.

Creative Writing Concentration

The creative writing concentration consists of English 142A and 142B and a minimum of 10 additional 4- or 5-unit upper division English courses: three creative writing courses from 133 or 134, taken in a single genre (poetry or short story), three literature courses paralleling the creative writing genre, and four electives selected from courses 140A through 182C. Students may declare this program as a concentration only after they have completed three creative writing workshops in a single genre. Students may not enroll in more than one workshop (course 133, 134, or 135) per term or in more than two workshops with the same instructor. No student may take for credit more than three workshops in any one creative writing genre. Students planning to select this program should contact the departmental counselor for further details.

World Literature Concentration

The world literature concentration consists of nine 4- or 5-unit upper division courses in English or American literature and four upper division courses in foreign literatures (at least 4 units each and one of which must be taught in the original language). The nine courses in English must include 141A or 141B or 143, 142A,

142B, at least one course from the 150 series, and four electives selected from courses 140A through 182C (students intending graduate work in literature are especially encouraged to take English 140A). A listing of acceptable courses may be obtained from the department.

International Students Program

The department offers a special program in English to bona fide international students whose native language is other than English. For this program, students must satisfy all requirements listed under Preparation for the Major; they may fulfill the departmental foreign language requirement with their own native language. The following 12 4- or 5-unit upper division courses are required for the program itself: English as a Second Language 106, 108, 109, English 121 or 122 or Applied Linguistics C116, English 142A, 142B, and six courses from English 100 through 199, four of which must be selected from 140A through 182C. Students who complete this program and wish to pursue graduate study should consult the departmental counselor about programs of study and requirements for admission.

American Literature and Culture B.A.

Preparation for the Major

Required: English Composition 3, English 4W or 4HW or 4WS, 10A, 10B, 10C taken in the stated sequence (each course is a requisite for the next course). A grade of C or better is required in each course.

Transfer Students

Transfer applicants to the American Literature and Culture major with 90 or more units must complete the following introductory courses prior to admission to UCLA: one English composition course, one English critical reading and writing course, one year of English literature survey courses, and two years of one foreign language or a combination of foreign language and foreign literature courses.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Twelve 4- or 5-unit upper division courses, including six in American literature selected from English 170A through 178B, two of which must be devoted to literature written before 1900 (courses 170A, 170B, 171A, 171B, 173A, 174A); two courses from 142A, 142B, 143; one seminar from M179A, M179B, M179C, 182A, 182B, 182C, or when treating American topics, 180; one course from M101A, M101B, M102A, M102B, 103, M104A, M104B, M104C, M105A, M105B, 106, M107A (also M101C or M107C when treating American topics or figures), or 109; and two courses from 100 through 199 or from courses pertaining to American culture offered by other departments (of those courses applied toward the major from outside the Department of English, both

must usually come from one department or program and appear on a list of approved courses for the major). Each course applied toward requirements for the major must be at least 4 units and be taken for a letter grade.

Honors Program

Admission

The honors program is open to departmental majors with a 3.5 departmental and a 3.25 overall grade-point average. Students with lower GPAs may petition for admission to the program, but these grade-point averages must be achieved before graduation in order to qualify for honors. Students should apply by Winter Quarter of the junior year. For application forms and further information, contact the departmental counselor.

Requirements

All honors students are required to take English 140A or 140B during the junior year and one seminar from the English M179A through 182C sequence, preferably before the senior year. Students in the creative writing concentration are required to have completed or been accepted into their third workshop in a single genre prior to or concurrent with enrollment in course 191H. In Spring Quarter of the junior year, students must take course 191H. During Fall and Winter Quarters of the senior year, they take courses 198A and 198B, in which they write a thesis under the direction of a faculty member. The thesis determines whether they receive highest honors, honors, or no honors.

English Minor

The English minor is designed for students who wish to enhance their major program with the benefits of intensive study of English language and literatures, including a better understanding and appreciation of literatures in English and improvement in critical thinking, reading, and writing skills.

To enter the minor, students must have an overall grade-point average of 2.0 or better, have completed English 10A with a grade of C or better, and have satisfied the English Composition 3 requirement and completed English 4W. Students must file a petition to declare the minor by meeting with a student affairs officer in the Undergraduate Counseling Office, 149 Humanities Building, (310) 825-1389. This allows them priority enrollment in many upper division courses.

Required Lower Division Courses (10 units): English 10B and 10C, with grades of C or better.

Required Upper Division Courses (21 to 25 units): Five courses selected from English 100 through 182C, including course 142A and one other course that focuses on literature in English written before 1900. A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major or minor requirements in another department or program.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of English offers Master of Arts (M.A.), Candidate in Philosophy (C.Phil.), and Doctor of Philosophy (Ph.D.) degrees in English.

English

Lower Division Courses

4HW. Critical Reading and Writing (Honors). (5) Lecture, four hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Introduction to literary analysis, with close reading and carefully written exposition of selections from principal modes of literature: poetry, prose fiction, and drama. Minimum of four papers (three to five pages each) and two in-class essays. Satisfies Writing II requirement. Letter grading.

4W. Critical Reading and Writing. (5) Lecture, four hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Introduction to literary analysis, with close reading and carefully written exposition of selections from principal modes of literature: poetry, prose fiction, and drama. Minimum of four papers (three to five pages each) and two in-class essays. Satisfies Writing II requirement. Letter grading.

4WS. Critical Reading and Writing (Service Learning). (5) Lecture, four hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Introduction to literary analysis, with close reading and carefully written exposition of selections from principal modes of literature: poetry, prose fiction, and drama. Minimum of 15 to 20 pages of revised writing. Service learning component includes minimum of 20 hours service with agency involved in issues of public advocacy and social justice. Satisfies Writing II requirement. Letter grading.

10A. English Literature to 1660. (5) Lecture, three hours; discussion, one hour. Enforced requisites: English Composition 3 or 3H, English 4W or 4HW. Study of selected works of period, beginning with selections from Old English poetry and including writings by Chaucer, Spenser, Shakespeare, Donne, and Milton. Minimum of three papers (three to five pages each) or equivalent. P/NP or letter grading.

10B. English Literature, 1660 to 1832. (5) Lecture, three hours; discussion, one hour. Enforced requisites: English Composition 3 or 3H, English 4W or 4HW, 10A. Study of selected works of period, including writings by Dryden, Pope, Swift, Wordsworth, and Keats. Minimum of three papers (three to five pages each) or equivalent. P/NP or letter grading.

10C. English Literature, 1832 to Present. (5) Lecture, three hours; discussion, one hour. Enforced requisites: English Composition 3 or 3H, English 4W or 4HW, 10A, 10B. Study of selected works of period, including writings by Tennyson, Arnold, Browning, Joyce, and Eliot. Minimum of three papers (three to five pages each) or equivalent. P/NP or letter grading.

20. Introduction to Creative Writing. (4) Lecture, four hours. Preparation: submission of creative or expository writing samples to screening committee. Enforced requisites: satisfaction of Entry-Level Writing requirement, English Composition 3 or 3H. Designed to introduce fundamentals of creative writing. Emphasis either on poetry, fiction, or drama, depending on wishes of instructor(s) during any given term. Readings from assigned texts and weekly writing assignments required. P/NP or letter grading.

M40. Structure of English Words. (5) (Same as Linguistics M10.) Lecture, four hours; discussion, one hour. Introduction to structure of English words of classical origin, including most common base forms and rules by which alternate forms are derived. Students may expect to achieve substantial enrichment of their vocabulary while learning about etymology, semantic change, and abstract rules of English word formation. P/NP or letter grading.

M50. Introduction to Visual Culture. (5) (Same as Film and Television M50.) Lecture, three hours; discussion, one hour; laboratory, two hours. Enforced requisite: satisfaction of Entry-Level Writing requirement. Study of how visual media, including advertising, still and moving images, and narrative films, influence contemporary aesthetics, politics, and knowledge. P/NP or letter grading.

70. Major British Authors before 1800. (4) Lecture, four hours. Enforced requisite: satisfaction of Entry-Level Writing requirement. Not open for credit to English majors or students with credit for course 10A or 10B. Study of selected masterpieces of English literature before 1800, including works of such writers as Chaucer, Shakespeare, Donne, Milton, Swift, Pope, Johnson, and Fielding. P/NP or letter grading.

75. Major British Authors, 1800 to Present. (4) Lecture, four hours. Enforced requisite: satisfaction of Entry-Level Writing requirement. Not open for credit to English majors or students with credit for course 10B or 10C. Study of selected masterpieces of English literature from 1800 to present, including works of such writers as Wordsworth, Coleridge, Keats, Tennyson, Dickens, Browning, Yeats, Joyce, and Eliot. P/NP or letter grading.

80. Major American Authors. (5) Lecture, three hours; discussion, one hour. Enforced requisite: satisfaction of Entry-Level Writing requirement. Not open for credit to English majors or students with credit for any courses in 170 series. Introduction to chief American authors, with emphasis on poetry, nonnarrative prose, and short fiction of such writers as Poe, Dickinson, Emerson, Whitman, Twain, Frost, and Hemingway. P/NP or letter grading.

85. American Novel. (5) Lecture, three hours; discussion, one hour. Enforced requisite: satisfaction of Entry-Level Writing requirement. Not open for credit to English majors or students with credit for any courses in 170 series. Development, with emphasis on form, of American novel from its beginning to present day. Includes works of such novelists as Hawthorne, Fitzgerald, Faulkner, Ellison, and Morrison. P/NP or letter grading.

88A-88Z. Lower Division Seminars: Special Topics in English. (5 each) Seminar, three hours. Limited to 15 students. Content varies; see departmental counselor for information. P/NP or letter grading. **88A.** Medieval Literature; **88B.** Renaissance Literature; **88C.** 17th-Century Literature; **88D.** 18th-Century Literature; **88E.** Romantic Literature; **88F.** Victorian Literature; **88G.** 20th-Century British Literature; **88H.** Colonial American Literature; **88I.** 19th-Century American Literature; **88J.** 20th-Century American Literature; **88K.** History of English Language; **88L.** Folklore and Mythology; **88M.** Literature and Society; **88SL.** Service Learning. Seminar, three hours; fieldwork, three hours. Textual analysis, analytical discussion, and written assignments about works of literature that raise issues relevant to contemporary society. Service learning component includes minimum of 20 hours service with agency involved in issues of public advocacy and social justice.

90. Shakespeare. (5) Lecture, three hours; discussion, one hour. Enforced requisite: satisfaction of Entry-Level Writing requirement. Not open for credit to English majors or students with credit for course 142A or 142B. Survey of Shakespeare's plays, including comedies, tragedies, and histories, selected to represent Shakespeare's breadth, artistic progress, and total dramatic achievement. P/NP or letter grading.

91A. Introduction to Poetry. (5) (Formerly numbered 95A.) Lecture, three hours; discussion, one hour. Enforced requisite: satisfaction of Entry-Level Writing requirement. Recommended for instructional credential candidates. Study of critical issues (metrics, diction, figurative language, symbolism, irony and ambiguity, form and structure) and aesthetic issues, including evaluative criteria, followed by close critical analysis of selection of representative poems. P/NP or letter grading.

91B. Introduction to Drama. (5) (Formerly numbered 95B.) Lecture, three hours; discussion, one hour. Enforced requisite: satisfaction of Entry-Level Writing requirement. Examination of representative plays; readings may range from Greek to modern drama. Emphasis on critical approaches to dramatic text; study of issues such as plot construction, characterization, special uses of language in drama, methods of evaluation. P/NP or letter grading.

91C. Introduction to Fiction. (5) (Formerly numbered 95C.) Lecture, three hours; discussion, one hour. Enforced requisite: satisfaction of Entry-Level Writing requirement. Introduction to prose narrative, its techniques and forms. Analysis of short and long narratives and of critical issues such as plot, characterization, setting, narrative voice, realistic and nonrealistic forms. P/NP or letter grading.

96. Short Story in England and America. (4) Lecture, four hours. Enforced requisite: satisfaction of Entry-Level Writing requirement. Historical survey of short story as genre from 19th century to present. P/NP or letter grading.

97H. Honors Seminar for Freshmen and Sophomores. (4) Seminar, three hours. Enforced requisites: English Composition 3 or 3H, English 4W or 4HW. Limited to 15 students. Recommended for lower division students who anticipate entering English honors program during their junior year. Content varies; see departmental counselor for information. P/NP or letter grading.

Upper Division Courses

100. Introduction to Special Topics and Genres. (4) Lecture, four hours. Enforced requisite: English Composition 3 or 3H. Study of particular topic, genre, or subgenre in literature such as satire, biography, parody, or specialized classification of literature. May be repeated for credit. P/NP or letter grading.

M101A. Lesbian and Gay Literature before Stonewall. (5) (Same as Lesbian, Gay, Bisexual, and Transgender Studies M101A and Women's Studies M101A.) Lecture, four hours. Requisite: English Composition 3 or 3H. Survey of lesbian and gay literature in English from earlier periods through 1960s. Works by such authors as Walt Whitman, Oscar Wilde, Radclyffe Hall, E.M. Forster, Willa Cather, Virginia Woolf, James Baldwin, Christopher Isherwood, William S. Burroughs, John Rechy, Audre Lorde, and Edward Albee. P/NP or letter grading.

M101B. Lesbian and Gay Literature after Stonewall. (5) (Same as Lesbian, Gay, Bisexual, and Transgender Studies M101B and Women's Studies M101B.) Lecture, four hours. Requisite: English Composition 3 or 3H. Survey of lesbian and gay literature in English since 1969, year of Stonewall Riots in New York City, commonly recognized as beginning of modern lesbian and gay culture. Works by such authors as Adrienne Rich, Jane Rule, Maureen Duffy, Brigid Brophy, Larry Kramer, Bertha Harris, Edmund White, Rita Mae Brown, Alan Hollinghurst, and Emma Donahue. P/NP or letter grading.

M101C. Special Topics in Lesbian and Gay Literature. (5) (Same as Lesbian, Gay, Bisexual, and Transgender Studies M101C and Women's Studies M101C.) Lecture, four hours. Enforced requisite: English Composition 3 or 3H. Variably specialized studies course in lesbian and gay literature. Topics focus on particular problem or issue in terms of its relationship to lesbian and gay culture and writing. May be repeated for credit. P/NP or letter grading.

M102A. Asian American Literature to 1980. (5) (Same as Asian American Studies M112A.) Lecture, four hours. Requisite: English Composition 3 or 3H. Survey of Asian American literature from early period of formation to cultural nationalist movement of late 1960s and 1970s. Works of such authors as Edith Eaton, Carlos Bulosan, Hisaye Yamamoto, Louis Chu, and Maxine Hong Kingston included. P/NP or letter grading.

M102B. Asian American Literature since 1980. (5) (Same as Asian American Studies M112B.) Lecture, four hours. Requisite: English Composition 3 or 3H. Survey of contemporary Asian American literature with emphasis on its growing ethnic diversity following influx of new immigrants. Works of such authors as Theresa Cha, Bharati Mukherjee, David Wong Louie, Garrett Hongo, and Jessica Hagedorn included. P/NP or letter grading.

103. Jewish American Fiction. (5) Lecture, four hours. Enforced requisite: English Composition 3 or 3H. Study of fiction of Jewish writers in America, such as Bellow, Malamud, and Roth, with focus on encounter of Jewish ethical ideals and social values with contemporary environment. P/NP or letter grading.

M104A. Early Afro-American Literature. (5) (Same as Afro-American Studies M104A.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Introductory survey of black American literature from 18th century through World War I, including oral and written forms (folktales, spirituals, sermons; fiction, poetry, essays), by authors such as Phillis Wheatley, David Walker, Frances Harper, Frederick Douglass, Harriet Jacobs, Paul Laurence Dunbar, Charles W. Chesnut, Booker T. Washington, and Pauline Hopkins. P/NP or letter grading.

M104B. Afro-American Literature from Harlem Renaissance to 1960s. (5) (Same as Afro-American Studies M104B.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Introductory survey of 20th-century black American literature from New Negro Movement of post-World War I period to 1960s, including oral materials (ballads, blues, speeches) and fiction, poetry, and essays by authors such as Jean Toomer, Claude McKay, Langston Hughes, Sterling Brown, Nella Larsen, Zora Neale Hurston, Richard Wright, Ann Petry, James Baldwin, and Ralph Ellison. P/NP or letter grading.

M104C. Afro-American Literature since 1960s. (5) (Same as Afro-American Studies M104C.) Lecture, four hours. Enforced requisite: English Composition 3 or 3H. Introductory survey of diverse forms of Afro-American literary expression produced from rise of Black Arts Movement of 1960s to present by writers such as Amiri Baraka, Nikki Giovanni, Alice Walker, Etheridge Knight, Toni Morrison, Martin Luther King, Jr., Paule Marshall, Ernest Gaines, Ishmael Reed, and Audre Lorde. P/NP or letter grading.

M105A. Early Chicana/Chicano Literature. (5) (Same as Chicana and Chicano Studies M105A.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Survey of Chicana/Chicano literature from 16th century through Zoot Suit Riots (1943), including both oral and written forms of literary expression (corridos, folktales, essays, memoirs, novels, and poetry) by such authors as Cabeza de Vaca, Juan Seguin, Americo Paredes, and Maria Ruiz Amparo Burton. P/NP or letter grading.

- M105B. Recent Chicana/Chicano Literature.** (5) (Same as Chicana and Chicano Studies M105B.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Survey of Chicana/Chicano literature since 1943, beginning with reactions to Zoot Suit Riots and continuing through Chicana/Chicano Movimiento to contemporary literature. Drama, novels, memoirs, essays, and poetry by such authors as Luis Valdez, Cherrie Moraga, Sandra Cisneros, Rodolfo Anaya, Rolando Hinojosa, Oscar Zeta Acosta, and Ana Castillo. P/NP or letter grading.
- M105C. Gender, Fiction, and Social Change.** (4) (Same as Chicana and Chicano Studies M105C.) Lecture, four hours. Enforced requisite: English Composition 3 or 3H. Study of essays, novels, short narratives, and plays written by Chicanas/Latinas. Required readings represent writers with focus on themes of identity, ethnicity, gender, and cross-border experiences leading to social change. Critical reading and analysis of works, searching for strengths and flaws, to point out unique contribution of each work to greater body of U.S. literature. P/NP or letter grading.
- 106. Native American Literary Studies.** (5) Lecture, four hours. Enforced requisite: English Composition 3 or 3H. Study of Native American oral cultures through translated documents (song-poems, life-stories, myths, tales, dream visions, speeches) and/or images in writing about Native Americans (poetry, fiction, history, anthropology, sociology). P/NP or letter grading.
- M107A. American Women Writers.** (5) (Same as Women's Studies M107A.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Survey of literary works by American women writers, with emphasis on roles of women, portrayal of nature and society, and evolution of forms and techniques in writing by American women. P/NP or letter grading.
- M107B. British Women Writers.** (5) (Same as Women's Studies M107B.) Lecture, four hours. Enforced requisite: English Composition 3 or 3H. Survey of literary works by British women writers, with emphasis on roles of women, portrayal of nature and society, and evolution of forms and techniques in writing by British women. P/NP or letter grading.
- M107C. Special Topics in Women and Literature.** (5) (Same as Women's Studies M107C.) Lecture, four hours. Enforced requisite: English Composition 3 or 3H. Variable specialized studies course in women and literature, with emphasis on one period, genre, particular theme, or nonnational literary grouping. P/NP or letter grading.
- 108A-108B. English Bible as Literature.** (4-4) Enforced requisite: English Composition 3 or 3H. Principal literary monuments of Old and New Testaments in King James Version. P/NP or letter grading. **108A.** Old Testament. Lecture, four hours; discussion, one hour (when scheduled); **108B.** New Testament. Lecture, four hours.
- 108C. English Bible as Literature: Special Topics.** (4) Lecture, four hours. Enforced requisite: English Composition 3 or 3H. Study of English Bible, with attention to particular literary themes, motifs, and genres. Possible discussion of influence of Bible on discrete periods or individual authors in English literature. May be repeated for credit. P/NP or letter grading.
- 109. Interdisciplinary Approaches to Literature.** (4) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Study of British or American literature in relation to other disciplines such as history, politics, philosophy, psychology. May be repeated for credit. P/NP or letter grading.
- 110. Studies in Individual Authors.** (4) Lecture, four hours. Enforced requisite: English Composition 3 or 3H. Specialized study of work of one single poet, dramatist, prose writer, or novelist. May be repeated for credit. P/NP or letter grading.
- 111A. Oral Tradition.** (4) Lecture, four hours. Enforced requisite: English Composition 3 or 3H. Study of myth, dramatic origins, oral epic, folktale, and ballad, emphasizing Indo-European and Semitic examples. P/NP or letter grading.
- 111C. British Folklore and Mythology.** (4) Lecture, four hours. Enforced requisite: English Composition 3 or 3H. Designed for juniors/seniors. Survey of folklore of peoples of Britain, with attention to their history, function, and regional differences. P/NP or letter grading.
- 111D. Celtic Mythology.** (4) Lecture, four hours. Enforced requisite: English Composition 3 or 3H. Survey of early materials, chiefly literary, for study of mythic traditions of Celtic peoples, ranging from ancient Gaul to medieval Ireland and Wales. P/NP or letter grading.
- 111E. Survey of Medieval Celtic Literature.** (4) Lecture, four hours. Enforced requisite: English Composition 3 or 3H. Knowledge of Irish or Welsh not required. General course dealing with Celtic literature from earliest times to 14th century. P/NP or letter grading.
- 111F. Celtic Folklore.** (4) Lecture, four hours. Enforced requisite: English Composition 3 or 3H. Folkloric traditions of modern Ireland, Scotland, and other Celtic countries, with attention to current techniques of folkloristic research. P/NP or letter grading.
- 112. Children's Literature.** (4) Lecture, four hours. Enforced requisite: English Composition 3 or 3H. Study of historical backgrounds and development of types of children's literature, folklore and oral tradition, levels of interest, criticism and evaluation, illustration and bibliography. P/NP or letter grading.
- 112SL. Children's Literature: Service Learning.** (4) Lecture, four hours; discussion, one hour (when scheduled); fieldwork, three to four hours. Enforced requisite: English Composition 3 or 3H. Study of historical backgrounds and development of types of children's literature, folklore, oral tradition, levels of interest, criticism and evaluation, illustration and bibliography. Service learning component includes minimum of 20 hours service with agency involved with literacy and education. P/NP or letter grading.
- 113. Literature for Adolescents and Young Adults.** (4) Lecture, four hours. Enforced requisite: English Composition 3 or 3H. Analysis and evaluation of literature intended mainly for students in junior and senior high schools. Review of mature books that are popularly suggested for this age group; study of interests and reading habits of young adults. P/NP or letter grading.
- 114. World Literatures in English.** (4) Lecture, four hours. Enforced requisite: English Composition 3 or 3H. Survey of contemporary literature from English-speaking regions of world, reviewing major genres from several countries and making cross-comparisons with literatures. Generalizations concerning nature of English used by such writers. May be repeated for credit. P/NP or letter grading.
- 115A. American Popular Literature.** (4) Lecture, four hours. Enforced requisite: English Composition 3 or 3H. Study of main currents of popular and cultural taste as reflected in such genres as dime novels, detective fiction, and Western stories. P/NP or letter grading.
- 115B. British Popular Literature.** (4) Lecture, four hours. Enforced requisite: English Composition 3 or 3H. Readings in literature of British masses, from 16th-century broadsides to contemporary novels. Examination of social functions of literature. P/NP or letter grading.
- 116. Science Fiction.** (4) Lecture, four hours. Enforced requisite: English Composition 3 or 3H. Study of science fiction and speculative literatures. P/NP or letter grading.
- 117. Detective Fiction.** (4) Lecture, four hours. Enforced requisite: English Composition 3 or 3H. Study of British and American detective fiction and literature of detection. P/NP or letter grading.
- 118. Film and Literature.** (4) Lecture, four hours. Enforced requisite: English Composition 3 or 3H. Study of interdisciplinary relationships between film and literature, including theme and structure, with focus on cinematic adaptations of literary works. P/NP or letter grading.
- 119. Literature of California and American West.** (4) Lecture, four hours. Enforced requisite: English Composition 3 or 3H. Study of literature in English dealing with exploration, settlement, and emergent cultural awareness of Western U.S. P/NP or letter grading.
- 120. Literature and Society.** (5) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: English Composition 3 or 3H. Intensive study of some aspect of relationship between literature and social, economic, or political history. May be repeated for credit. P/NP or letter grading.
- 121. History of English Language.** (4) Lecture, four hours. Enforced requisite: English Composition 3 or 3H. Study directed toward English majors of main features in grammatical, lexical, and phonetic condition of English language from Indo-European time to present. P/NP or letter grading.
- 122. Introduction to Structure of Present-Day English.** (4) Lecture, four hours. Enforced requisite: English Composition 3 or 3H. Introduction to techniques of linguistic description as applied to pronunciation, grammar, and vocabulary of modern English. P/NP or letter grading.
- 133. Creative Writing: Poetry.** (5) Lecture, four hours. Enforced requisites: English Composition 3 or 3H, English 4W or 4HW. Weekly exercises in writing of poetry, with practice in standard forms and meters and study of techniques. Classroom discussion based on student use. Enrollment in more than one section per term not permitted. May be repeated for maximum of 15 units. No more than 10 units may be completed with same instructor. P/NP or letter grading.
- 134. Creative Writing: Short Story.** (5) Lecture, four hours. Enforced requisites: English Composition 3 or 3H, English 4W or 4HW. Three average-length stories to be completed each term. Some stories may, with instructor's consent, be substantial revisions of other stories presented. Classroom discussion based on stories presented. Enrollment in more than one section per term not permitted. May be repeated for maximum of 15 units. No more than 10 units may be completed with same instructor. P/NP or letter grading.
- 135. Creative Writing: Drama.** (5) Lecture, four hours. Enforced requisites: English Composition 3 or 3H, English 4W or 4HW. Exploration of capacity of each student to write for theater. Class discussion of student writing, individual conferences, rehearsed readings, and laboratory productions. Enrollment in more than one section per term not permitted. May be repeated for maximum of 15 units. No more than 10 units may be completed with same instructor. P/NP or letter grading.
- 137. Advanced Computer Techniques for Students of English.** (5) Lecture, four hours. Enforced requisites: English Composition 3 or 3H, English 4W or 4HW. Concurrent instruction in writing computer programs for literary study and in kinds of literary research that can be aided by computers. BASIC is taught; students must know how to operate computers. Principles of computer science neither assumed nor taught. P/NP or letter grading.
- 140A. Criticism: History and Theory.** (5) Lecture, four hours. Requisites: courses 10A, 10B. Study of some major historical documents and theoretical statements in history of literary criticism, including works by such writers as Plato, Aristotle, Horace, Sidney, Dryden, Johnson, Kant, Coleridge, Wordsworth, Shelley, Arnold, James, Croce, and T.S. Eliot, with emphasis on major critical positions posed and developed by these writers, basis of their theoretical positions, and practical consequences of those positions. Possible discussion of recent trends in criticism. P/NP or letter grading.
- 140B. Criticism: Special Topics.** (5) Lecture, four hours. Requisites: courses 10A, 10B. Study of limited periods and specialized issues and approaches in history of literary criticism, including moral, biographical, sociological, psychological, formal, structural, and deconstructionist. Area of concentration determined by instructor and listed in *Schedule of Classes*. Some study

of literary texts, to illuminate value and practical application of approach, may be required. May be repeated for credit with topic change. P/NP or letter grading.

141A. Chaucer: *Canterbury Tales*. (5) Lecture, four hours. Requisites: courses 10A, 10B. Introductory study of Chaucer's language, versification, and historical and literary background, including analysis and discussion of his long major poem, *Canterbury Tales*. Satisfies department's Chaucer requirement. P/NP or letter grading.

141B. Chaucer: *Troilus and Criseyde* and Selected Minor Works. (5) Lecture, four hours. Requisites: courses 10A, 10B. Intensive study of *Troilus and Criseyde* and selected minor works of Chaucer, such as *Book of the Duchess*, *House of Fame*, *Parliament of Fowls*, etc. Satisfies department's Chaucer requirement. P/NP or letter grading.

142A. Shakespeare: Poems and Early Plays. (5) Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 10A, 10B. Intensive study of selected poems and representative comedies, histories, and tragedies through *Hamlet*. P/NP or letter grading.

142B. Shakespeare: Later Plays. (5) Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 10A, 10B. Intensive study of representative problem plays, major tragedies, Roman plays, and romances. P/NP or letter grading.

142C. Shakespeare: Selected Topics. (5) Lecture, three or four hours. Requisites: courses 10A, 10B. Designed for students interested in further study of Shakespeare. Limits of investigation set by individual instructors. P/NP or letter grading.

143. Milton. (5) Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 10A, 10B. Study of major works of Milton, with emphasis on *Paradise Lost*. P/NP or letter grading.

150A. Early Medieval Literature. (5) Lecture, four hours. Requisites: courses 10A, 10B. Reading knowledge of Old English not required. Major prose and poetry of Anglo-Saxon England (600 to 1100), including epic, romance, history, saints' lives, and travel literature. Texts and topics include *Beowulf*, Vikings, poems on women, Bede, and King Alfred. P/NP or letter grading.

150B. Later Medieval Literature. (5) Lecture, four hours. Requisites: courses 10A, 10B. Reading and historical explication of major writers of 14th and 15th centuries (e.g., Gawain-poet, Langland, Gower, Malory, miracle and morality plays, prose, and lyrics). More difficult texts read in modernized form. P/NP or letter grading.

151. Elizabethan Literature. (5) Lecture, four hours. Requisites: courses 10A, 10B. Study of English literature of 16th century, with special emphasis on development and interrelationships of poetry, prose, fiction, and literary theory and criticism during reign of Elizabeth I. P/NP or letter grading.

152A. Drama from Beginning to 1576. (5) Lecture, four hours. Requisites: courses 10A, 10B. English drama from its Latin and Anglo-Norman roots to opening of first public playhouse. P/NP or letter grading.

152B. Drama, 1567 to 1642. (5) Lecture, four hours. Requisites: courses 10A, 10B. Non-Shakespearean English drama from opening of first public playhouse to closing of theaters. P/NP or letter grading.

153. Literature of Early 17th Century, 1600 to 1660. (5) Lecture, four hours. Requisites: courses 10A, 10B. Study of major works as literary documents and as products of 17th-century thought. Work of Milton excluded. P/NP or letter grading.

154. Literature of Restoration and Earlier 18th Century, 1660 to 1730. (5) Lecture, four hours. Requisites: courses 10A, 10B. Study of major works as literary documents and as products of Restoration and earlier 18th-century thought. P/NP or letter grading.

155. Literature of Later 18th Century, 1730 to 1798. (5) Lecture, four hours. Requisites: courses 10A, 10B. Study of major works as literary documents and as products of later 18th-century thought. P/NP or letter grading.

156. Drama, 1660 to 1842. (5) Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 10A, 10B. Survey of English drama from Restoration to Licensing Act. P/NP or letter grading.

157. Novel to 1832. (5) Lecture, four hours. Requisites: courses 10A, 10B. Survey of works of major English novelists from Defoe through Scott. P/NP or letter grading.

160. Earlier Romantic Literature. (5) Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 10A, 10B, 10C. Intensive study of writings by Blake, Wollstonecraft, W. Wordsworth, Coleridge, and Austen, with collateral readings from such authors as Godwin, Burke, Paine, Radcliffe, Edgeworth, Baillie, C. Smith, Burns, Southey, D. Wordsworth, Lamb, DeQuincey, and Scott. P/NP or letter grading.

161. Later Romantic Literature. (5) Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 10A, 10B, 10C. Intensive study of writings by Byron, Keats, Percy Shelly, and Mary Shelley, with collateral readings from such authors as Hazlitt, Hunt, Landor, Clare, Moore, Peacock, Landon, Aikin, Hemans, and Prince. P/NP or letter grading.

162. Earlier Victorian Poetry and Prose. (5) Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 10A, 10B, 10C. Study of poetry and prose of Victorian age from passage of first Reform Bill through high Victorian period, including such authors as Tennyson, Browning, Arnold, Carlyle, Mill, and Newman. P/NP or letter grading.

163. Later Victorian Poetry and Prose. (5) Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 10A, 10B, 10C. Study of poetry and prose of later Victorian age from Pre-Raphaelitism through aesthetic and decadent movements, along with other intellectual trends, including such authors as Ruskin, Swinburne, Pater, Hopkins, Hardy, Wilde, and Yeats. P/NP or letter grading.

164. Novel, 1832 to 1900. (5) Lecture, four hours. Requisites: courses 10A, 10B, 10C. Survey of major English novelists from Dickens through Hardy. P/NP or letter grading.

165. 20th-Century British Poetry. (5) Lecture, four hours. Requisites: courses 10A, 10B, 10C. Survey of major British poets, including Yeats, Eliot, Auden, and Hughes, from 1900 to present. P/NP or letter grading.

166. 20th-Century British Fiction. (5) Lecture, four hours. Requisites: courses 10A, 10B, 10C. Survey of major British novelists and short story writers, including Conrad, Joyce, Woolf, and Lawrence, from 1900 to present. P/NP or letter grading.

167. Drama, 1842 to 1945. (5) Lecture, four hours. Requisites: courses 10A, 10B, 10C (for Theater and Film and Television majors 10A, 10B, 10C requisites are waived). Survey of British and American drama, with its principal continental influences, from 1842 through World War II. P/NP or letter grading.

168. Drama, 1945 to Present. (5) Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 10A, 10B, 10C. Study of British and American drama, with its principal continental influences, since World War II. P/NP or letter grading.

169A. Special Topics in British Studies. (5) Lecture, four hours. Requisites: courses 10A, 10B, 10C. Study of particular themes, forms, or moments in British and/or Anglophone literature. Satisfies department's pre- or post-19th-century requirement, depending on date of subject matter. May be repeated for credit with topic change. P/NP or letter grading.

169B. Postcolonial Literatures. (5) Lecture, four hours. Requisites: courses 10A, 10B, 10C. Survey of how colonialism and decolonization have shaped and been shaped by literature in English. Study of new Englishes and literature that combines European and non-Western aesthetic forms to produce new literary traditions. May be repeated for credit. P/NP or letter grading.

170A. American Literature to 1775. (5) Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 10A, 10B, 10C. Historical survey of American literature through Colonial period. P/NP or letter grading.

170B. American Literature, 1775 to 1832. (5) Lecture, four hours. Requisites: courses 10A, 10B, 10C. Historical survey of American literature during Revolutionary and early republic periods. P/NP or letter grading.

171A. American Literature, 1832 to 1865. (5) Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 10A, 10B, 10C. Historical survey of American literature from Jacksonian era to end of Civil War. P/NP or letter grading.

171B. American Literature, 1866 to 1912. (5) Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 10A, 10B, 10C. Historical survey of American literature from end of Civil War to founding of *Poetry* magazine. P/NP or letter grading.

172A. American Literature, 1912 to 1945. (5) Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 10A, 10B, 10C. Historical survey of American literature from founding of *Poetry* magazine to end of World War II. P/NP or letter grading.

172B. American Literature since 1945. (5) Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 10A, 10B, 10C. Historical survey of American literature since end of World War II. P/NP or letter grading.

173A. American Fiction to 1900. (5) Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 10A, 10B, 10C. Study of American fiction (both novels and short stories) from its beginning to end of 19th century. P/NP or letter grading.

173B. American Fiction, 1900 to 1945. (5) Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 10A, 10B, 10C. Study of American novels and short stories from beginning of 20th century to end of World War II. P/NP or letter grading.

173C. American Fiction since 1945. (5) Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 10A, 10B, 10C. Study of American novels and short stories since end of World War II. P/NP or letter grading.

174A. American Poetry to 1900. (5) Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 10A, 10B, 10C. Study of American poetry from Puritan period through end of 19th century. P/NP or letter grading.

174B. American Poetry, 1900 to 1945. (5) Lecture, four hours. Requisites: courses 10A, 10B, 10C. Study of American poetry from beginning of 20th century to end of World War II. P/NP or letter grading.

174C. American Poetry since 1945. (5) Lecture, four hours. Requisites: courses 10A, 10B, 10C. Study of American poetry since end of World War II. P/NP or letter grading.

175. American Nonfictional Prose. (5) Lecture, four hours. Requisites: courses 10A, 10B, 10C. Study of American nonfictional prose (essays, autobiographies, travel narratives, and other). Particular genre and/or historical period vary with instructor. P/NP or letter grading.

176. American Drama. (5) Lecture, four hours. Requisites: courses 10A, 10B, 10C. Study of American drama from its beginning to present day. Historical period may vary with instructor. P/NP or letter grading.

177. Special Topics in American Literature. (5) Lecture, four hours; discussion, one hour (when scheduled). Requisites: courses 10A, 10B, 10C. Focused study of some aspect or theme in American literature. May be repeated for credit. P/NP or letter grading.

178A. Perspectives in Study of American Culture. (5) Lecture, four hours. Requisites: courses 10A, 10B, 10C. Interdisciplinary study of American literature in its relationships to other disciplines, including art, architecture, film, history, music, politics, and various social sciences, with emphasis on application of literary methodology to historical survey of American culture. May be repeated for credit. P/NP or letter grading.

178B. Interracial Encounters in Contemporary American Literature. (5) Lecture, three or four hours. Enforced requisites: English Composition 3 or 3H, English 4W or 4HW. Study of recent literary and cinematic texts produced by people from different eth-

nic backgrounds living in U.S. and providing comparative cultural perspectives on living in multiethnic society. P/NP or letter grading.

M179A. Topics in Afro-American Literature. (5) (Same as Afro-American Studies M179A.) Seminar, four hours. Enforced requisite: English Composition 3 or 3H. Variable specialized studies course in Afro-American literature. Topics include Harlem Renaissance; Afro-American Literature in Nadir, 1890 to 1914; Contemporary Afro-American Fiction. May be repeated for credit. P/NP or letter grading.

M179B. Topics in Chicana/Chicano Literature. (5) (Same as Chicana and Chicano Studies M139.) Seminar, three hours. Enforced requisite: English Composition 3 or 3H. Variable specialized studies course in Chicana/Chicano literature. Topics include labor and literature; Chicana/Chicano visions of Los Angeles; immigration, migration, and exile; autobiography and historical change; Chicana/Chicano journalism; literary New Mexico; specific literary genres. May be repeated for credit. P/NP or letter grading.

M179C. Topics in Asian American Literature. (5) (Same as Asian American Studies M191F.) Seminar, three hours. Enforced requisite: English Composition 3 or 3H. Variable specialized studies course in Asian American literature. Topics include specific genres (autobiography, poetry, or drama); specific nationalities within Asian American community; and themes related to such problems as generational differences, gender politics, or interethnic encounters. Reading, discussion, and development of culminating project. May be repeated for credit with topic change. P/NP or letter grading.

180. Specialized Studies in Literature. (5) Seminar, four hours. Requisites: courses 10A, 10B, 10C. Consult *Schedule of Classes* for author, period, genre, or subject to be studied in specific term. May be repeated for credit. P/NP or letter grading.

181A. Specialized Studies in Medieval Literature. (5) Seminar, three or four hours. Requisites: courses 10A, 10B, 10C. Consult *Schedule of Classes* for author, period, genre, or subject to be studied in specific term. May be repeated for credit. P/NP or letter grading.

181B. Specialized Studies in Renaissance Literature. (5) Seminar, three or four hours. Requisites: courses 10A, 10B, 10C. Consult *Schedule of Classes* for author, period, genre, or subject to be studied in specific term. May be repeated for credit. P/NP or letter grading.

181C. Specialized Studies in 17th-Century Literature. (5) Seminar, three or four hours. Requisites: courses 10A, 10B, 10C. Consult *Schedule of Classes* for author, period, genre, or subject to be studied in specific term. May be repeated for credit. P/NP or letter grading.

181D. Specialized Studies in 18th-Century Literature. (5) Seminar, four hours. Requisites: courses 10A, 10B, 10C. Consult *Schedule of Classes* for author, period, genre, or subject to be studied in specific term. May be repeated for credit. P/NP or letter grading.

181E. Specialized Studies in Romantic Literature. (5) Seminar, three or four hours. Requisites: courses 10A, 10B, 10C. Consult *Schedule of Classes* for author, period, genre, or subject to be studied in specific term. May be repeated for credit. P/NP or letter grading.

181F. Specialized Studies in Victorian Literature. (5) Seminar, three or four hours. Requisites: courses 10A, 10B, 10C. Consult *Schedule of Classes* for author, period, genre, or subject to be studied in specific term. May be repeated for credit. P/NP or letter grading.

181G. Specialized Studies in 20th-Century British Literature. (5) Seminar, three or four hours. Requisites: courses 10A, 10B, 10C. Consult *Schedule of Classes* for author, period, genre, or subject to be studied in specific term. May be repeated for credit. P/NP or letter grading.

182A. Specialized Studies in Colonial American Literature. (5) Seminar, three or four hours. Requisites: courses 10A, 10B, 10C. Consult *Schedule of Classes* for author, period, genre, or subject to be studied in specific term. May be repeated for credit. P/NP or letter grading.

182B. Specialized Studies in 19th-Century American Literature. (5) Seminar, three or four hours. Requisites: courses 10A, 10B, 10C. Consult *Schedule of Classes* for author, period, genre, or subject to be studied in specific term. May be repeated for credit. P/NP or letter grading.

182C. Specialized Studies in 20th-Century American Literature. (5) Seminar, three or four hours. Requisites: courses 10A, 10B, 10C. Consult *Schedule of Classes* for author, period, genre, or subject to be studied in specific term. May be repeated for credit. P/NP or letter grading.

190H. Honors Research Colloquia in English. (1) Seminar, one hour. Enforced corequisite: course 198A or 198B. Designed to bring together students undertaking supervised tutorial research for departmental honors in seminar setting with one or more faculty members to discuss their own work in progress and critical readings related to honors projects. Led by one supervising faculty member. May be repeated for credit. P/NP grading.

191H. Honors Research Seminars: English. (5) Seminar, three hours. Enforced requisite: course 140A or 140B. Open only to students who are eligible and apply for honors program in English. Introduction to research techniques and study of various approaches and applications of critical methodology as it relates to interpretation and evaluation of texts. Development and presentation of proposals for honors projects. Consult undergraduate adviser. May be repeated for credit. Letter grading.

192. Undergraduate Practicum in English. (4) Seminar, four hours. Limited to juniors/seniors. Training and supervised practicum for advanced undergraduate students. Students assist in preparation of materials and development of innovative programs with guidance of faculty members in small course settings. May be repeated for credit. P/NP or letter grading.

193. Colloquia and Speakers' Series Undergraduate Seminars: English. (1) Seminar, one hour. Limited to undergraduate students. Discussion of current critical literature and/or creative readings by writers, artists, and scholars. Exploration in greater depth of literary topics and creative work presented through sponsored forums, speakers' series, and colloquia. May be repeated for credit. P/NP grading.

195. Community or Corporate Internships in English. (4) Tutorial, to be arranged. Limited to juniors/seniors. Individual internship in supervised setting in community agency, education, museum, or arts venue, or business. Students meet on regular basis with instructor and provide periodic written reports of their experience. May require analytic essay, as determined by supervising faculty member. May be repeated for credit. Individual contract with supervising faculty member required. P/NP grading.

197. Individual Studies in English. (2 to 5) Tutorial, four hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

198A-198B. Honors Research in English. (5-5) Tutorial, to be arranged. Requisite: course 191H. Limited to juniors/seniors. Development and completion of honors thesis under direct supervision of faculty member. May be repeated for credit. Individual contract required. In Progress (198A) and letter (198B) grading.

199. Directed Research or Senior Project in English. (2 to 8) Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual literary research and creative projects under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200. Approaches to Literary Research. (4) Lecture, four hours. Bibliographical tools of English and American literary scholarship; introduction to descriptive bibliography and basic methods of research. Periods covered vary. S/U or letter grading.

201A. Criticism and Interpretation from Classical Era to Renaissance. (4) Lecture, three hours. Examination of major texts in history of critical theory and interpretation from pre-Socratics to Descartes, including classical literary criticism (Plato, Aristotle, Horace, Longinus), biblical hermeneutics (Bible, Midrash, St. Paul, St. Augustine, St. Thomas Aquinas), and medieval and Renaissance theories of interpretation (Dante, Boccaccio, Sidney). S/U or letter grading.

201B. Aesthetics and Criticism from Enlightenment to Decadence. (4) Lecture, three hours. Continuation of course 201A, proceeding from neoclassical and Enlightenment critical theory through Victorian and decadent aesthetic and literary criticism. Readings may include texts by Rousseau, Dryden, Pope, Hume, Kant, Schiller, the Schlegels, Coleridge, Hegel, Schelling, Arnold, Pater, Wilde, and Nietzsche. S/U or letter grading.

201C. Developments and Issues in Modern Critical Thought. (4) Lecture, three hours. Study of major figures and ideas in modern and contemporary critical theory. Readings vary from year to year but may include such figures as Freud, Durkheim, Saussure, Heidegger, Shkolvskii, Benjamin, Adorno, Levi-Strauss, Lacan, Barthes, Derrida, Deleuze, Fanon, Foucault, Irigaray, Lyotard, Bourdieu, and Bhabha. S/U or letter grading.

203. Computers and Literary Research. (4) Lecture, four hours. Prior knowledge in this area not required. Practice in writing and using computer programs for analysis of literary style, content, and authorship. S/U or letter grading.

204. History of Rhetoric. (4) Lecture, four hours. Reading of basic texts in history of rhetoric and selections from standard commentaries. Survey of classical period and medieval-to-modern period in alternate years. S/U or letter grading.

M205A. Study of Oral Tradition: History and Methods. (4) (Same as Scandinavian M271.) Seminar, three hours. Exploration of scholarly and literary attempts to study, define, analyze, promote, and/or appropriate oral traditions, from Homer and ancient Greece to origins of vernacular literatures, European romantic (re)discovery of oral tradition, 20th-century heuristic models of oral composition, and modern-day electronic media and popular verbal genres, such as joking and rapping. S/U or letter grading.

M205B. Collecting Oral Tradition. (4) (Same as Scandinavian M272.) Seminar, three hours. Description and evaluation of various modern approaches to collecting and documenting oral tradition as text, performance, and sociocultural event. Consideration of approaches ranging from written transcription and textualization to audio and video presentation. S/U or letter grading.

M205C. Studies in Oral Traditional Genres. (4) (Same as Scandinavian M273.) Seminar, three hours. Exploration in depth of variety and history of, and scholarship on, particular oral traditional genre (e.g., ballad, song, epic, proverb, riddle, folktale, legend) or set of closely related oral traditional genres. S/U or letter grading.

210. History of English Language. (4) Lecture, four hours. Detailed study of history, characteristics, and changing forms of English language from its origin until about 1900. S/U or letter grading.

211. Old English. (4) Lecture, four hours. Study of Old English grammar, lexicon, phonology, and pronunciation to enable students to read literature silently and aloud. Reading of as much of more interesting Old English prose and poetry as can be read in one term. S/U or letter grading.

212. Middle English. (4) Lecture, four hours. Requisite: course 211. Detailed study of linguistic aspects of Middle English and of representative examples of better prose and poetry. S/U or letter grading.

213. Early Modern English. (4) Lecture, four hours. Detailed study of phonology, morphology, syntax, and vocabulary of English between 1450 and 1750. Description and analysis of changes in language in relation to intellectual, political, and social characteristics of period. S/U or letter grading.

214. Modern English. (4) Lecture, four hours. Description and analysis of modern English phonology, grammar, and vocabulary, using theory and techniques of contemporary linguistics. Survey of evolution of American English and account of characteristic phonological and grammatical features of major regional varieties of English around world. S/U or letter grading.

M215. Paleography of Latin and Vernacular Manuscripts, 900 to 1500. (4) (Same as Classics M218, French M210, and History M218.) Lecture, three hours; discussion, two hours. Introduction to history of Latin and vernacular manuscript book from 900 to 1500 to (1) train students to make informed judgments with regard to place and date of origin, (2) provide training in accurate reading and transcription of later medieval scripts, and (3) examine manuscript book as witness to changing society that produced it. Focus on relationship between Latin manuscripts and vernacular manuscripts with regard to their respective presentation of written texts. S/U or letter grading.

216A-216B. Old Irish. (4) Lecture, four hours. Studies in grammar. Readings in glosses and other texts. Comparative considerations. S/U or letter grading.

217A-217B. Medieval Welsh. (4) Lecture, four hours. Studies in grammar. Readings in Mabinogi and other texts. Comparative considerations. S/U or letter grading.

218. Celtic Linguistics. (4) Lecture, four hours. Survey of salient features of Celtic linguistic stock in its Gaelic and British branches, with reference to position of Celtic within Indo-European languages. S/U or letter grading.

230. Workshop: Creative Writing. (2 to 4) Lecture, two to four hours. Preparation: submission of writing samples in specified genre (poetry, fiction, or drama). May be repeated but may not satisfy more than one of nine courses required for first qualifying examination nor any of five courses required for second qualifying examination. S/U or letter grading.

240. Studies in History of English Language. (4) Lecture, four hours. Individual seminars dealing with any single historical period from Old English period to present or development of one particular linguistic characteristic (phonology, syntax, semantics, dialectology) through various periods. May be repeated for credit. S/U or letter grading.

241. Studies in Structure of English Language. (4) Lecture, four hours. Topics in various aspects of structure of modern English, especially syntax and semantics. May be repeated for credit. S/U or letter grading.

242. Language and Literature. (4) Lecture, four hours. Application of linguistics to literary analysis. Individual seminars dealing with one historical period (medieval and Renaissance, neoclassical, or 19th century and modern), specific authors, or contributions of specific groups of linguists to literary analysis. May be repeated for credit. S/U or letter grading.

244. Old and Medieval English Literature. (4) Lecture, four hours. Studies in poetry and prose of Old and medieval English literature; limits of investigation set by individual instructor. May be repeated for credit. S/U or letter grading.

245. Chaucer. (4) Lecture, four hours. May be repeated for credit. S/U or letter grading.

246. Renaissance Literature. (4) Lecture, four hours. Studies in poetry and prose of Renaissance English literature, exclusive of Shakespeare; limits of investigation set by individual instructor. May be repeated for credit. S/U or letter grading.

247. Shakespeare. (4) Lecture, three hours. May be repeated for credit. S/U or letter grading.

248. Earlier 17th-Century Literature. (4) Lecture, three hours. Studies in poetry and prose of 17th-century English literature up to Restoration; limits of investigation set by individual instructor. May be repeated for credit. S/U or letter grading.

249. Milton. (4) Lecture, three hours. Studies in poetry and prose of John Milton; limits of investigation set by individual instructor. May be repeated for credit. S/U or letter grading.

250. Restoration and 18th-Century Literature. (4) Lecture, three hours. Studies in English poetry and prose, 1660 to 1800; limits of investigation set by individual instructor. May be repeated for credit. S/U or letter grading.

251. Romantic Writers. (4) Lecture, three hours. May be repeated for credit. S/U or letter grading.

252. Victorian Literature. (4) Lecture, three hours. Studies in English poetry and prose of Victorian period; limits of investigation set by individual instructor. May be repeated for credit. S/U or letter grading.

253. Contemporary British Literature. (4) Lecture, three hours. May be repeated for credit. S/U or letter grading.

254. American Literature to 1900. (4) Lecture, three hours. Studies in Colonial and 19th-century American literature; limits of investigation set by individual instructor. May be repeated for credit. S/U or letter grading.

255. Contemporary American Literature. (4) Lecture, three hours. Studies in contemporary American poetry and prose; limits of investigation set by individual instructor. May be repeated for credit. S/U or letter grading.

256. Studies in Drama. (4) Lecture, three hours. Studies in drama as genre from its beginning to present; limits of investigation set by individual instructor. May be repeated for credit. S/U or letter grading.

257. Studies in Poetry. (4) Lecture, three hours. Studies in various themes and forms of poetry from Old English to present; limits of investigation set by individual instructor. May be repeated for credit. S/U or letter grading.

258. Studies in Novel. (4) Lecture, three hours. Studies in evolution of genre from its beginning to present; limits of investigation set by individual instructor. May be repeated for credit. S/U or letter grading.

259. Studies in Criticism. (4) Lecture, three hours. May be repeated for credit. S/U or letter grading.

260. Studies in Literature and Its Relationship to Arts and Sciences. (4) Lecture, three hours. Studies in interrelationships of literature, arts, and sciences; limits of investigation set by individual instructor. May be repeated for credit. S/U or letter grading.

M260A. Topics in Asian American Literature. (4) (Same as Asian American Studies M260.) Seminar, three hours. Graduate seminar that examines and critically evaluates writings of Asian Americans. May be repeated for credit. S/U or letter grading.

261. Studies in Chicana/Chicano Literature. (4) Seminar, three hours. Intensive research and study of major themes, authors, and issues in Chicana/Chicano literature and culture. Examination of political, aesthetic, economic, and cultural context that emerges in Chicana/Chicano discourse; limits of investigation set by individual instructor. May be repeated for credit. S/U or letter grading.

M262. Studies in Afro-American Literature. (4) (Same as Afro-American Studies M200E.) Lecture, four hours. Intensive research and study of major themes, issues, and writers in Afro-American literature. Discussions and research on aesthetic, cultural, and social backgrounds of Afro-American writing. May be repeated for credit. S/U or letter grading.

263. Celtic Literature. (4) Lecture, three hours. Preparation: knowledge of one ancient or modern Celtic language. Studies in poetry and prose of early

and modern Celtic literatures, chiefly Irish and Welsh; limits of investigation set by individual instructor. May be repeated for credit. S/U or letter grading.

264. Studies in Rhetoric. (4) Lecture, three hours. Special topics in classical and modern rhetoric, including substantial practice in rhetorical analysis of literary texts. May be repeated for credit. S/U or letter grading.

265. Postcolonial Literatures. (4) Seminar, three hours. Study of aesthetic, historical, and social backgrounds to literatures of former British colonies that became independent after 1947. General issues related to way imperialism, colonialism, and postcolonialism have helped to shape and have been shaped by literature in English. May be repeated for credit. S/U or letter grading.

M266. Cultural World Views of Native America. (4) (Same as American Indian Studies M200B.) Seminar, three hours. Exploration of written literary texts from oral cultures and other expressive cultural forms—dance, art, song, religious and medicinal ritual—in selected Native American societies, as these traditional and tribal contexts have been translated into contemporary literary texts (fiction, poetry, essay, and drama). Survey, from secondary sources, of interdisciplinary methodological approaches taken from literary analysis, structural anthropology, folklore, linguistics, and ethnomusicology. May be repeated for credit with instructor and/or topic change. Letter grading.

M270. Seminar: Literary Theory. (5) (Same as Asian M251, Comparative Literature M294, French M270, German M270, Italian M270, Scandinavian M270, and Spanish M294.) Seminar, three hours. Advanced interdisciplinary seminar to explore philosophical, historical, and critical foundations of literary theory as well as current issues in literary and cultural studies. S/U or letter grading.

272. Current Issues in Teaching English. (4) Seminar, four hours. Focus on one of variety of topics of special current interest. May be repeated for credit. S/U or letter grading.

M298. Interdisciplinary Studies in 17th and 18th Centuries. (4) (Same as History M298.) Discussion, four hours. Topics vary according to participating faculty. May be repeated for credit. S/U or letter grading.

M299. Interdisciplinary American Studies. (6) (Same as History M299.) Discussion, four hours. Readings, discussion, and papers on common theme, team-taught by faculty members from different departments. Topics vary according to participating faculty. May be repeated for credit with consent of instructors. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May not be substituted for any departmental enrollment requirements. May be repeated for credit. S/U grading.

495A. Supervised Teaching Preparation. (2) Seminar, two hours. Required of all applicants for teaching assistantships in English. Introduction to teaching of literature intended to prepare teaching assistants for their first assignments in leading discussion sections. Practical concerns of creating assignments, grading papers, and holding conferences. S/U grading.

495B. Supervised Teaching Preparation. (2) Seminar, two hours. Required of all teaching assistants in their initial quarter of teaching. Mentoring and group teaching assistant/mentor conferences. S/U grading.

495E. Teaching with Technology. (2 to 4) Seminar, two hours. Enables graduate student instructors to approach challenges of teaching with technology on two fronts: by familiarizing them with range of possible applications and by carrying out research project on technology topic of their choice. S/U grading.

496. Publishing Academic Literary Articles. (4) Discussion, four hours. Structured as writing workshop and divided into two parts: (1) determination of what publishable article looks like while students re-

work independently and (2) circulation of student papers to class in advance with writing discussed in seminar room by whole class. S/U grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. Directed Individual Study. (2 to 4) Tutorial, to be arranged. Limited to students preparing for first qualifying examination or engaging in intensive directed research project. May not be applied toward any course requirement for degree. Consult graduate counselor to enroll or obtain information. S/U or letter grading.

597. Preparation for Ph.D. Examinations. (4 to 12) Tutorial, to be arranged. Limited to second-stage Ph.D. students preparing for second qualifying examination. S/U grading.

598. M.A. Research and Thesis Preparation. (4 or 8) Tutorial, to be arranged. Limited to graduate students. May not be applied toward any course requirement for degree. S/U grading.

599. Ph.D. Dissertation Research. (4 or 8) Tutorial, to be arranged. Limited to Ph.D. students unable to enroll in seminars in their fields or to students concurrently enrolled in such seminars. (Exception to this rule must be requested by petition.) S/U grading.

ENGLISH COMPOSITION (WRITING PROGRAMS)

College of Letters and Science

UCLA
146 Humanities Building
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Bruce J. Beiderwell, Ph.D., *Director*
George E. Gadda, C.Phil., *Assistant Director*

Lecturers

Bruce J. Beiderwell, Ph.D.
Teddi Chichester, Ph.D.
Richard A. Creese, Ph.D.
Esha N. De, Ph.D.
Randall J. Fallows, Ph.D.
Ed P. Frankel, M.A.
Rachel I. Fretz, Ph.D.
George E. Gadda, C.Phil.
Lisa Gerrard, Ph.D.
Cheryl F. Giuliano, Ph.D.
Susan M. Griffin, Ph.D.
Leigh C. Harris, Ph.D.
Christine Holten, M.A.
Janette Lewis, Ph.D.
Bonnie J. Lisle, Ph.D.
Karl F. Lisovsky, M.A.
Sonia Maasik, M.A.
Sandra Mano, Ph.D.
Lauri M. Mattenson, M.A.
Michele L. Moe, Ph.D.
Shelby A. Popham, Ph.D.
Gregory J. Rubinson, Ph.D.
Robert D. Samuels, Ph.D.
Gina V. Shaffer, Ph.D.
Steve K. Steinberg, Ed.D.
Jennifer Westbay, Ph.D.

Scope and Objectives

Students need writing proficiency at every stage of their university careers. Although UCLA does not have a composition major, this program offers a series of courses introducing

the varieties of university discourse and providing instruction in basic to high-level skills. Besides courses that satisfy the University's Entry-Level Writing and Writing I and II (English Composition) requirements, the program offers advanced courses in exposition and a language and composition course for teachers. Special programs include the Transfer Intensive Program (TIP).

Undergraduate Study

Entry-Level Writing

Every student who does not satisfy the Entry-Level Writing requirement by presenting transfer credit or acceptable test scores is required to take, as early as possible during the first year in residence, English Composition A, 2, or 2I (determined by performance on the Analytical Writing Placement Examination). For more information regarding Entry-Level Writing, see Undergraduate Degree Requirements in the Undergraduate Study section of this catalog.

English Composition

Lower Division Courses

A. Introduction to University Discourse. (No credit) Lecture, five hours. Enforced prerequisite: appropriate score on Analytical Writing Placement Examination. Displaces 4 units on student's Study List but yields no credit toward degree. First course in reading university-level texts and framing written responses that employ range of rhetorical strategies from paraphrase to analysis. Emphasis on revision, developing syntactic variety and academic vocabulary, and editing for grammar and style. Completion of course with grade of C or better or demonstration of minimum competence on Analytical Writing Placement Examination is requisite to course 2. Letter grading.

2. Approaches to University Writing. (5) Lecture, four hours. Enforced prerequisite: course A with grade of C or better or appropriate score on Analytical Writing Placement Examination. Second course in university-level discourse, with analysis and critique of university-level texts. Emphasis on revision for argumentative coherence and effective style. Completion of course with grade of C or better satisfies Entry-Level Writing requirement. Letter grading.

2I. Approaches to University Writing. (5) Lecture, six hours. Enforced prerequisite: appropriate scores on Analytical Writing Placement Examination and English as a Second Language Placement Examination. Second course in university-level discourse, with analysis and critique of university-level texts. Emphasis on strategies for developing coherent and well-argued pieces of academic writing and for achieving effective and clear style in academic prose. Completion of course with grade of C or better satisfies Entry-Level Writing and English as a Second Language requirements. Letter grading.

3. English Composition, Rhetoric, and Language. (5) Lecture, three hours. Enforced prerequisites: satisfaction of Entry-Level Writing requirement, course 2 or English as a Second Language 35 (C or better). Rhetorical techniques and skillful argument. Analysis of varieties of academic prose and writing of minimum of 20 pages of revised text. Completion of course with grade of C or better satisfies Writing I requirement. Letter grading.

3H. English Composition, Rhetoric, and Language (Honors). (5) Lecture, three hours. Enforced prerequisites: satisfaction of Entry-Level Writing requirement, course 2 or English as a Second Language 35 (C or better). Rhetorical techniques and skillful argument. Analysis of varieties of academic prose and writing of

minimum of 20 pages of revised text. Completion of course with grade of C or better satisfies Writing I requirement. Letter grading.

5W. Literature, Culture, and Critical Inquiry. (5) Lecture, four hours. Enforced prerequisite: course 3 or 3H or English as a Second Language 36. Use of analysis of literary works within cultural context to engage students in critical thinking and writing about issues important to academic inquiry and responsible citizenship. Minimum of 15 to 20 pages of revised text required in addition to regular informal writing exercises. Satisfies Writing II requirement. Letter grading.

6W. Language, Culture, and Discourse. (5) Lecture, four hours. Enforced prerequisite: course 3 or 3H or English as a Second Language 36. Study of structure and use of English and how it reflects social structure and cultural values. Readings in linguistic analysis, language acquisition, sociolinguistics, and pragmatics provide foundation as students analyze authentic language as it is used in private and public contexts. Minimum of 15 to 20 pages of revised writing required. Satisfies Writing II requirement. Letter grading.

30W. Intermediate Academic Writing: Various Topics. (5) Lecture, four hours; discussion, one hour. Enforced prerequisite: course 3 or 3H or English as a Second Language 36. Theme-based interdisciplinary writing course. Assignments involve students in critical reading, application, and integration of sources. Minimum of 20 pages of revised text required. Satisfies Writing II requirement. Letter grading.

50. Writing Workshop. (2) Lecture, five hours. Limited to high school students. Introduction to demands of university writing and often unstated conventions that govern it. Writing techniques developed to address specific writing tasks such as timed examination, application essay, effective e-mail, and college paper. Offered in summer only. P/NP or letter grading.

Upper Division Courses

100W. Interdisciplinary Academic Writing. (5) Lecture, four hours. Prerequisite: course 3 or 3H or English as a Second Language 36. Designed for sophomores/juniors/seniors. Course in academic writing suitable for both lower and upper division students that helps them develop academic papers with range of complexity and length. Focus on conventions of academic prose and genres across disciplines. Written assignments include common forms of academic writing such as argument, research paper, and/or critical essay. Satisfies Writing II requirement. Letter grading.

110. Writing Adjunct. (4) Lecture, four hours. Prerequisites: satisfaction of Entry-Level Writing requirement, course 3 or 3H. Students must be concurrently enrolled in course offered in conjunction with course 110 (consult *Schedule of Classes* for courses so designated). Writing assignments use materials from adjunct course and reflect and develop analytic writing skills needed in that course. May be repeated for credit with consent of instructor. P/NP or letter grading.

120A. Language Study for Teachers: Elementary School. (4) Lecture, four hours. Prerequisite: satisfaction of Entry-Level Writing and English Composition requirements. Survey of topics in English linguistics of special interest to elementary school teachers. Subjects include approaches to English grammar; language acquisition and development; language attitudes; regional and social dialects of American English; bilingual schooling; contribution of English language study to teaching of reading, writing, spelling, and literature. P/NP or letter grading.

120B. Language Study for Teachers of English: Secondary School. (4) Lecture, four hours. Prerequisite: satisfaction of Entry-Level Writing and English Composition requirements. Review of terminology of English grammar and survey of development of modern grammars. Introduction to basic concepts in bilingual and multilingual education, sociolinguistics, dialectology, and stylistics, especially as applied to analysis and evaluation of writing assigned in secondary school. P/NP or letter grading.

ENVIRONMENTAL HEALTH SCIENCES

School of Public Health

UCLA

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Box 951772
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(310) 206-1619

fax: (310) 794-2106

<http://www.ph.ucla.edu/ehs/>

Richard J. Jackson, M.D., M.P.H., *Chair*

Professors

Richard F. Ambrose, Ph.D.
Michael D. Collins, Ph.D.
Jared M. Diamond, Ph.D.
Curtis D. Eckhart, Ph.D.
John R. Froines, Ph.D.
Hilary A. Godwin, Ph.D.
Oliver Hankinson, Ph.D.
William C. Hinds, Sc.D.
Richard J. Jackson, M.D., M.P.H.
Scott P. Layne, M.D.
André E. Nel, M.B.Ch.B., Ph.D.
Shane S. Que Hee, Ph.D.
Linda Rosenstock, M.D., M.P.H.
Robert H. Schiestl, Ph.D.
Irwin H. Suffet, Ph.D.
Arthur M. Winer, Ph.D.
Zuo-Feng Zhang, M.D., Ph.D.

Professors Emeriti

Arthur K. Cho, Ph.D.
Climis A. Davos, Ph.D.
Robert A. Mah, Ph.D.

Associate Professors

Beate R. Ritz, M.D., Ph.D.
Wendie A. Robbins, R.N., Ph.D., F.A.A.N.
Jane L. Valentine, Ph.D.

Assistant Professors

Nola Kennedy, Ph.D., *in Residence*
Yifang Zhu, Ph.D.

Adjunct Associate Professor

Linwood H. Pendleton, D.F.E.S.

Adjunct Assistant Professor

Pablo Cicero-Fernandez, D.Env.

Scope and Objectives

The Department of Environmental Health Sciences focuses its research and educational activities on the protection of human health from biological, chemical, and physical hazards in the environment. Its graduates are scientists and professionals capable of identifying and measuring agents of environmental concern; evaluating the health, environmental, and all other impacts of such agents; developing means for their effective management; and evaluating alternative policies directed at improving and protecting environments. Such training is accomplished through several degree programs that offer specialized study in selected academic areas of environmental health sciences such as air pollution, environmental chemistry, environmental management, toxicology, built environment and health, industrial hygiene, and water quality. Graduates of the department pursue careers in the private or public sector as researchers, educators, managers, policymakers, and/or practitioners.

Graduate Courses

300. Teaching English. (4) Lecture, four hours. Required of candidates for single subject credential in English. Study of theories of rhetoric, composition, reading, and literature as they apply to secondary school or college English curriculum. S/U or letter grading.

495A. Supervised Teaching Preparation. (2) Seminar, two hours. Required of all teaching assistants for Writing II courses not exempt by appropriate departmental or program training. Training and mentoring, with focus on composition pedagogy, assessment of student writing, guidance of revision process, and specialized writing problems that may occur in disciplinary contexts. Practical concerns of creating assignments, marking and grading essays, and conducting peer reviews and conferences. S/U grading.

495B. Supervised Teaching Preparation. (2) Seminar, two hours. Course 495A is not requisite to 495B. Required of all teaching assistants who are assigned to English Composition 3 courses. Focus on composition pedagogy, writing course design, assessment of student writing, and specialized problems that may occur in teaching English Composition 3. S/U grading.

495C. Supervised Teaching Preparation. (2) Seminar, two hours. Requisite: course 495B. Required of all teaching assistants who are assigned to English Composition 3 courses. Focus on composition pedagogy, writing course design, assessment of student writing, and specialized problems that may occur in teaching English Composition 3. S/U grading.

495D. Supervised Teaching Preparation. (2) Seminar, two hours. Requisite: course 495A. Required of all teaching assistants for Writing II courses not exempt by appropriate departmental or program training. Training and mentoring, with focus on composition pedagogy, assessment of student writing, guidance of revision process, and specialized writing problems that may occur in disciplinary contexts. Practical concerns of creating assignments, marking and grading essays, and conducting peer reviews and conferences. S/U grading.

M495E. Supervised Teaching Preparation. (2) (Same as Engineering M495E.) Seminar, two hours. Required of all teaching assistants for Engineering writing courses not exempt by appropriate departmental or program training. Training and mentoring, with focus on composition pedagogy, assessment of student writing, guidance of revision process, and specialized writing problems that may occur in engineering writing contexts. Practical concerns of preparing students to write course assignments, marking and grading essays, and conducting peer reviews and conferences. S/U grading.

M495F. Supervised Teaching Preparation. (2) (Same as Engineering M495F.) Seminar, one hour. Requisite: course M495E. Required of all teaching assistants in their initial term of teaching Engineering writing courses. Mentoring in group and individual meetings. Continued focus on composition pedagogy, assessment of student writing, guidance of revision process, and specialized writing problems that may occur in engineering writing contexts. Practical concerns of preparing students to write course assignments, marking and grading essays, and conducting peer reviews and conferences. S/U grading.

123. Information Literacy and Research Skills. (1) Lecture, one hour. Preparation: satisfaction of Writing I requirement. Designed to help students become information literate, so they know how to identify, locate, critically evaluate, and use print and electronic information effectively and ethically. Closely interwoven with Writing Programs courses that have information/research-related assignments. P/NP or letter grading.

129A-129D. Academic Writing in Disciplines. (4 each) Lecture, four hours. Designed for juniors/seniors. Advanced study of writing conventions in specific disciplinary areas, with focus on analysis and development of writing expertise in common discursive forms, stylistic patterns, and research practices in given discipline. Each course may be taken independently for credit. P/NP or letter grading. **129A.** Literature; **129B.** Social Sciences. Lecture, three hours; discussion, one hour; **129C.** Physical and Life Sciences; **129D.** Fine Arts.

130A. Composition for Teachers: Elementary School. (4) Lecture, four hours. Requisite: satisfaction of Entry-Level Writing and English Composition requirements. Preparation for future elementary school teachers of English composition in writing and criticism of kinds of prose discourse usually taught in primary schools. Letter grading.

130B. Composition for Teachers: Secondary School. (4) Lecture, four hours. Requisite: satisfaction of Entry-Level Writing and English Composition requirements. Preparation for future secondary school teachers of English composition in writing and criticism of kinds of prose discourse usually taught in secondary schools. P/NP or letter grading.

131A-131D. Specialized Writing. (4 each) Lecture, four hours. Requisite: satisfaction of Entry-Level Writing and English Composition requirements. Designed to help students develop stylistic, formal, and argumentative sophistication in various rhetorical contexts, including different sections that emphasize rhetorical values of major professions and research areas. Each course may be taken independently for credit. P/NP or letter grading. **131A.** Law and Politics; **131B.** Business and Social Policy; **131C.** Medicine and Public Health; **131D.** Media and Communications.

132A-132D. Topics in Rhetoric and Writing. (4 each) Lecture, four hours; discussion, one hour. Requisite: satisfaction of Entry-Level Writing and English Composition requirements. Designed for juniors/seniors. Study of specific topics in relationship between rhetoric/writing and social or political history. Each course may be taken independently for credit. P/NP or letter grading. English majors who wish to use course to satisfy departmental requisites must take it for letter grade. **132A.** Gender and Writing; **132B.** Autobiographical Writing; **132C.** Cultural Studies; **132D.** Variable Topics.

136A-136B-136C. Practical Writing and Editing. (4-4-4) Lecture, three hours. Preparation: one course from 131 series. Requisites: satisfaction of Entry-Level Writing requirement, course 3. Sequence in practical writing and editing ability specifically designed to prepare students for careers. Analysis of prose and literary styles necessary to variety of writing in professional, nonacademic fields combined whenever possible with practical experience in variety of writing internships and training in wide range of editorial skills. In Progress (136A) and P/NP or letter (136B, 136C) grading.

195. Community or Corporate Internships in English Composition. (4) Tutorial, to be arranged. Requisites: course 3 or 3H, satisfaction of Writing II requirement. Limited to juniors/seniors. Internship in supervised setting in community agency or business. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for credit. Individual contract with supervising faculty member required. P/NP or letter grading.

199. Directed Research or Senior Project in English Composition. (2 to 4) Tutorial, to be arranged. Requisite: course 3 or 3H. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

The department offers M.S. and Ph.D. degrees in Environmental Health Sciences and, through the School of Public Health, the M.P.H. and Dr.P.H. degrees with a specialization in environmental health sciences (see Public Health Schoolwide Programs). In addition, a unique doctoral degree (Doctor of Environmental Science and Engineering—D.Env.) is offered by the interdepartmental Environmental Science and Engineering Program which is administered through the department. The interdepartmental Molecular Toxicology Program also offers a Ph.D. degree.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Environmental Health Sciences offers Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Environmental Health Sciences.

Environmental Health Sciences

Upper Division Courses

100. Introduction to Environmental Health. (4) Lecture, three hours; discussion, one hour. Preparation: one course each in chemistry and biology. Introduction to environmental health, including coverage of sanitary principles and chronic and acute health effects of environmental contaminants. P/NP or letter grading.

C125. Atmospheric Transport and Transformations of Airborne Chemicals. (4) Lecture, four hours. Preparation: one year of calculus, one course each in physics, organic chemistry, and physical chemistry. Designed for science, engineering, and public health students. Role of regional or long-range transport, and atmospheric lifetimes and fates of airborne chemicals in phenomena such as photochemical smog, acid deposition, stratospheric ozone depletion, accumulation of greenhouse gases, and regional and global distribution of volatile toxic compounds. Concurrently scheduled with course C225. P/NP or letter grading.

C135. Environmental Policy for Science and Engineering. (4) Lecture, four hours. Limited to senior undergraduate and graduate students. Examination of theoretical underpinnings of several major types of regulatory policy, as well as practical issues involved in implementing and enforcing each. Exploration of selection and impact of regulatory forms from variety of disciplines and viewpoints. Focus on traditional command and control regulation (including self-executing performance standards and permitting), market-based regulation (such as emissions trading), remediation, and emerging regulatory approaches such as management-based regulation and alternatives assessment. Issues of compliance and enforcement. Concurrently scheduled with course C235. P/NP or letter grading.

C140. Fundamentals of Toxicology. (4) Lecture, four hours. Preparation: one course each in biology, organic chemistry, and biochemistry. Essential aspects of toxicology, with emphasis on human species. Absorption, distribution, excretion, biotransformation,

as well as basic toxicologic processes and organ systems. Concurrently scheduled with course C240. Letter grading.

C152D. Properties and Measurement of Airborne Particles. (4) Lecture, four hours. Preparation: one year each of chemistry, physics, and calculus. Basic theory and application of aerosol science to environmental health, including properties, behavior, sampling, and measurement of aerosols and quantitative problems. Concurrently scheduled with course C252D. P/NP or letter grading.

C157. Risk Assessment and Standard Setting. (4) Seminar, four hours. Requisites: course C140, Epidemiology 100. Designed to provide students with opportunity to review scientific basis for association of selected occupational and environmental exposures with disease. Special emphasis on critical evaluations of literature. Attention specifically to interface of science and regulatory standards. Concurrently scheduled with course C257. P/NP or letter grading.

C164. Fate and Transport of Organic Chemicals in Aquatic Environment. (4) Lecture, four hours. Recommended requisites: Chemistry 14A and 14B, or 20A and 20B. Evaluation of how and where and in what form and concentration organic pollutants are distributed in aquatic environments. Study of mass transport mechanisms moving organic chemicals between phases, biological degradation and accumulation, and chemical reactions. Effect of humic substances on these processes. Concurrently scheduled with course C264. P/NP or letter grading.

M166. Environmental Microbiology. (4) (Same as Civil Engineering M166.) Lecture, four hours; discussion, two hours; outside study, six hours. Recommended requisite: Civil Engineering 153. Microbial cell and its metabolic capabilities, microbial genetics and its potentials, growth of microbes and kinetics of growth, microbial ecology and diversity, microbiology of wastewater treatment, probing of microbes, public health microbiology, pathogen control. Letter grading.

M166L. Environmental Microbiology and Biotechnology Laboratory. (1) (Same as Civil Engineering M166L.) Laboratory, two hours; outside study, two hours. Corequisite: course M166. General laboratory practice within environmental microbiology, sampling of environmental samples, classical and modern molecular techniques for enumeration of microbes from environmental samples, techniques for determination of microbial activity in environmental samples, laboratory setups for studying environmental biotechnology. Letter grading.

C180. Principles of Nanobiological Interactions and Nanotoxicology. (4) Lecture, four hours. Preparation: basic understanding of biology and chemistry at level required for admission to University of California at undergraduate level in engineering, physical, or natural sciences. Introduction to commonly used vocabulary in nanoscience required to appreciate biological interactions and potential toxicity of nanomaterials. Discussion of synthesis and physical-chemical characterization of engineered nanomaterials. Development of understanding of unique properties of engineered nanomaterials and how these properties contribute to biological interactions. Relation of properties of engineered nanomaterials to their potential for transport, reactivity, uptake, and toxicity in natural environments and in body. Concurrently scheduled with course C280. P/NP or letter grading.

C185A-C185B. Foundations of Environmental Health Sciences. (6-6) Lecture, six hours. Multidisciplinary aspects of environmental health sciences in context of public health for environmental health majors. Concurrently scheduled with courses C200A-C200B. Letter grading. **C185A.** Preparation: one year of undergraduate biology, calculus, chemistry, and physics. **C185B.** Requisite: course C185A.

197. Individual Studies in Environmental Health Sciences. (2 to 4) Tutorial, four hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evi-

dence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

C200A-C200B. Foundations of Environmental Health Sciences. (6-6) (Formerly numbered 200A-200B.) Lecture, six hours. Multidisciplinary aspects of environmental health sciences in context of public health for environmental health majors. Concurrently scheduled with courses C185A-C185B. Letter grading. **C200A.** Preparation: one year of undergraduate biology, calculus, chemistry, and physics. **C200B.** Requisite: course C200A.

200C. Case Studies in Environmental Health Sciences. (2) Lecture, two hours. Requisites: courses C200A, C200B. Environmental and public health challenges of 21st century are changing so quickly and are so interdigitated with social, resource, economic, and global issues that it becomes necessary for environmental health professionals to be able to operate comfortably within contextual boundaries and under pressures of real-time decision making. Examination of headlines of last 12 months that offer examples of managing change and crisis. Letter grading.

201. Seminar: Health Effects of Environmental Contaminants. (2) Seminar, two hours. Requisites: courses C200A, C200B. Emphasis on health effects of air, water, environmental pollutants on man and review of research literature. May be repeated for credit. S/U or letter grading.

202. Seminar: Environmental Chemistry. (2) Seminar, one hour. Requisites: courses C200A, C200B, 410A, 410B. Environmental chemistry aspects of environmental health sciences through multimedia analyses and biological and microbiological analyses. May be repeated for credit. Letter grading.

203. Seminar: Ecotoxicology. (2) Seminar, two hours. Discussion of various topics in ecotoxicology. Topics vary from term to term and include aspects of environmental chemistry, toxicology, and ecology. May be repeated for credit. S/U grading.

204. Seminar: Exposure Assessment. (2) Seminar, two hours. Discussion of various topics in exposure assessment. Topics vary by term and include aspects of population activity, microenvironments, types of monitoring (outdoor, indoor, personal, biomarkers), and multimedia sources of exposure. S/U grading.

205. Environmental Health Sciences Doctoral Seminar. (2) Seminar, two hours. Limited to environmental health sciences doctoral students. Presentation of current research of environmental health sciences doctoral students. May be repeated for credit. S/U grading.

206. Seminar: Applied Coastal Ecology. (2) Seminar, two hours. Discussion of various topics in applied coastal ecology. Topics vary by term and include wetland ecology, restoration ecology, and ecology and management of coastal watersheds. May be repeated for credit. S/U grading.

207. Introduction to Geographic Information Systems. (4) Lecture, two hours; laboratory, two hours. Introduction to geographic information systems (GIS), including use of GIS software, mapping, geocoding, and data analysis. S/U or letter grading.

208. Built Environment and Health. (4) Lecture, three hours; discussion, one hour. Limited to public health and urban planning graduate students. Interdisciplinary course on built environment and health and breaking down silos. U.S. and other developed, as well as developing, countries are facing increasingly lethal and costly epidemics of acute and chronic diseases related to land use and built environment decisions. While hazards presented by air and water pollution are well recognized for acute, infectious, and toxicological illnesses, there is increasing recognition of hazards presented by building and community designs that fail to recognize human health. Land use and built environment decisions impact every age group and social and racial minority. Impacts range from very acute (motor vehicle trauma) to long term (obesity, cancer, heart disease). Decisions have as

their bases economic, financial, insurance, housing, and other factors. Analysis of each factor and related disease endpoints. S/U or letter grading.

209. Practical Applications in Environmental Health Sciences. (2) Lecture, two hours. Enforced requisites: courses C200A, C200B. Description of many leading environmental and occupational health problems that environmental health practitioners face today, conducted as series of lectures, assignments, hands-on field exercises, and group projects, to help students develop skills necessary to integrate concepts across disciplines in field of environmental health. May satisfy some requirements needed to qualify for Registered Environmental Health Specialist (REHS) certification. S/U or letter grading.

210. Public Health and Environmental Microbiology. (4) Lecture, three hours. Preparation: one course each in biology, organic chemistry, and biochemistry. Basic principles: cycling of matter, fates of natural and man-made compounds in environment, wastewater and drinking water microorganisms and treatment, and public health microorganisms. S/U or letter grading.

M211. Epidemiologic Methods in Violent Injury. (4) (Same as Epidemiology M252.) Lecture, four hours. Requisites: Epidemiology 200A, 200B, and 200C (or 100). Description and critical evaluation of epidemiologic methods in approaches to understanding incidence risk factors and prevention strategies of violence and violence-related injury. Letter grading.

212. Applied Ecology. (4) Lecture, four hours. Preparation: one ecology course. Application of ecological theory and principles to solve environmental problems, including conservation biology, assessment of environmental impacts, and restoration ecology and mitigation of environmental impacts. Letter grading.

214. Children's Environmental Health: Prenatal and Postnatal. (4) Lecture, four hours. Preparation: one year each of chemistry and biology. Examination of how environmental exposures to chemical, physical, and biological agents during period of maturation (from fertilization to adulthood) cause pathophysiological perturbations in homeostasis at any stage during life. Letter grading.

M220. Public Health Microbiology. (4) (Same as Epidemiology M225.) Lecture, four hours. Preparation: introductory microbiology. Requisites: Epidemiology 200A, 200B, and 200C (or 100). Corequisite: course M220L. Role of public health laboratory is to support testing needs of programs. To successfully fulfill this role, laboratory must provide information based on most sensitive and specific technologies available. Coverage of common infectious disease agents of public health importance and definition of impact of molecular biology on disease detection and epidemiology in modern public health laboratory. S/U or letter grading.

M220L. Public Health Laboratory. (4) (Same as Epidemiology M225L.) Laboratory, five hours. Preparation: introductory microbiology. Corequisite: course M220. Public health laboratory techniques for detection and identification of pathogenic microorganisms. S/U or letter grading.

C225. Atmospheric Transport and Transformations of Airborne Chemicals. (4) (Formerly numbered 225.) Lecture, four hours. Preparation: one year of calculus, one course each in physics, organic chemistry, and physical chemistry. Designed for science, engineering, and public health students. Role of regional or long-range transport, and atmospheric lifetimes and fates of airborne chemicals in phenomena such as photochemical smog, acid deposition, stratospheric ozone depletion, accumulation of greenhouse gases, and regional and global distribution of volatile toxic compounds. Concurrently scheduled with course C125. S/U or letter grading.

C235. Environmental Policy for Science and Engineering. (4) (Formerly numbered 235.) Lecture, four hours. Limited to senior undergraduate and graduate students. Examination of theoretical underpinnings of several major types of regulatory policy, as well as practical issues involved in implementing and enforcing each. Exploration of selection and impact of regulatory forms from variety of disciplines and viewpoints.

Focus on traditional command and control regulation (including self-executing performance standards and permitting), market-based regulation (such as emissions trading), remediation, and emerging regulatory approaches such as management-based regulation and alternatives assessment. Issues of compliance and enforcement. Concurrently scheduled with course C135. Letter grading.

C240. Fundamentals of Toxicology. (4) (Formerly numbered 240.) Lecture, four hours. Preparation: one course each in biology, organic chemistry, and biochemistry. Essential aspects of toxicology, with emphasis on human species. Absorption, distribution, excretion, biotransformation, as well as basic toxicologic processes and organ systems. Concurrently scheduled with course C140. Letter grading.

M245. Laboratory in Toxicological Methods. (2) (Same as Molecular Toxicology M245 and Pharmacology M234C.) Lecture, one hour; laboratory, four to five hours. Survey of experimental techniques used in study of toxic substances. Experiments conducted within known toxin to demonstrate its effects at molecular, cellular, and tissue levels. Presentation of principles of techniques and methods of data analysis at discussion session prior to laboratory. Letter grading.

M246. Molecular Toxicology. (4) (Same as Molecular Toxicology M246.) Lecture, four hours. Enforced requisite: course C240. Fundamental aspects of toxicology required for deep understanding of toxicological processes, with research-oriented outlook. Dissemination of information about important molecular toxicological topics to make students think about them from research perspective. Students learn about cutting-edge research areas of molecular toxicology, how to most optimally extract important information from research papers, how to critique papers, how to formulate alternative hypotheses for data in papers, how to formulate ideas for future research, and how to express their ideas effectively in oral settings. Letter grading.

250D. Industrial Hygiene Practice. (2) Seminar, two hours. Requisites: courses C200A, C200B. Presentation of topics that are relevant to current practice of occupational health. Topics include discussions of regulatory framework, risk assessment and risk communication, new legislation, and emergent occupational health issues. S/U grading.

251. Prevention of Disease in Workers and Workplaces. (3) Lecture, three hours. Review of health conditions caused by occupational exposures, worker-oriented preventive methods, and workplace-related approaches to improving general health. Integration of exposure- and clinical-based preventive strategies. Appropriate for students in occupational-environmental medicine, preventive medicine, epidemiology, nursing, and occupational hygiene, and toxicologists interested in human implications. Letter grading.

C252D. Properties and Measurement of Airborne Particles. (4) (Formerly numbered 252D.) Lecture, four hours. Preparation: one year each of chemistry, physics, and calculus. Basic theory and application of aerosol science to environmental health, including properties, behavior, sampling, and measurement of aerosols and quantitative problems. Concurrently scheduled with course C152D. S/U or letter grading.

252E. Identification and Measurement of Gases and Vapors. (4) Lecture, three hours; discussion, one hour; outside study, two hours. Preparation: one year each of chemistry, physics, and calculus. Theoretical and practical aspects of industrial hygiene sampling and measurement of gases and vapors. Letter grading.

252F. Industrial Hygiene Measurements Laboratory. (3) Laboratory, three hours. Corequisites: courses C252D, 252E. Limited to industrial hygiene majors. Laboratory methods for sampling, measurement, and analysis of gases, vapors, and aerosols found in occupational environment. S/U or letter grading.

252G. Industrial and Environmental Hygiene Assessment. (4) Lecture, one hour; discussion, two hours; laboratory, two hours; outside study, four hours. Requisites: courses C200A, C200B, C252D, 252E, 252F. Environmental and industrial hygiene sampling strategies and assessment via walk-through

surveys, lectures, group discussion, actual field measurements, laboratory calibrations, and analyses and reports, with emphasis on chemical, physical, and ergonomic hazards. Letter grading.

253. Physical Agents in Work Environment. (2 to 4) (Formerly numbered 253A, 253B.) Lecture, two hours; laboratory, two hours. Preparation: one year of physics. Physics, measurement methods, health effects, and control methods for radiation (ionizing and nonionizing), noise, and thermal stress in workplace environment. S/U or letter grading.

255. Control of Airborne Contaminants in Industry. (4) Lecture, two hours; laboratory, two hours. Preparation: one year of physics. Requisite: course C252D. Principles and applications of control technology to industrial environments, including general and local exhaust ventilation, air cleaning equipment, and respiratory protection. S/U or letter grading.

256. Biological and Health Surveillance Monitoring in Occupational/Environmental Health. (4) Lecture, three hours; discussion, one hour; assignments, three hours. Principles and applications of biological monitoring and health surveillance to assess occupational and environmental exposures to organic and inorganic chemicals and physical factors. Letter grading.

C257. Risk Assessment and Standard Setting. (4) (Formerly numbered 257.) Seminar, four hours. Requisites: courses C240, 251, Epidemiology 100. Designed to provide students with opportunity to review scientific basis for association of selected occupational and environmental exposures with disease. Special emphasis on critical evaluations of literature. Attention specifically to interface of science and regulatory standards. Concurrently scheduled with course C157. S/U or letter grading.

258. Identification and Analysis of Hazardous Wastes. (4) Lecture, three hours; discussion, one hour; laboratory, one hour; one field trip. Requisites: course 252E, Biostatistics 100A. Designed to define, identify, label, and quantify hazardous wastes and how workers should be protected. Provides critical understanding of all analytical aspects of hazardous wastes, health aspects, and regulation and practice of handling hazardous wastes. Letter grading.

259A. Occupational Safety and Ergonomics. (4) Lecture, four hours. Overview of most frequent and severe occupational injuries and illnesses, their distribution, causes, analysis methods, and control approaches, including low back pain, falls, machine exposures, upper extremity musculoskeletal disorders, fleet safety, and selected ergonomics topics. Letter grading.

259C. Seminar Series: Occupational Ergonomics. (2) Seminar, two hours. Requisite: course 259A. Emphasis on research methodology as applied to prevention and control of worker-related musculoskeletal disorders. Topics include applied anthropometry, biomechanical modeling, strength measurement, postural analysis, fatigue, and medical surveillance of cumulative trauma disorders. S/U grading.

259G. Fire Prevention, Protection, and Facility Design. (3) Lecture, three hours. Requisite: course 259A. Introduction to application of fire sciences, engineering, and management principles to prevention, suppression, and control of fires and explosions and protection of persons and property from fire or explosion damage and injury. Letter grading.

261. Chemical Behavior of Aquatic Systems. (4) Lecture, three hours. Requisites: courses C200A, C200B, Chemistry 20A, 20B, Mathematics 3A. Chemistry of ocean waters, rivers, groundwaters, and water treatment systems. Topics include thermodynamics of natural waters, acids and bases, carbon dioxide cycle, solubility reactions, oxidation and reduction, plus applied problems. Letter grading.

C264. Fate and Transport of Organic Chemicals in Aquatic Environment. (4) (Formerly numbered 264.) Lecture, four hours. Preparation: bachelor's degree in science, engineering, geophysics, chemistry, biology, or public health. Evaluation of how and where and in what form and concentration organic pollutants are distributed in aquatic environments. Study of mass transport mechanisms moving organic chemicals be-

tween phases, biological degradation and accumulation, and chemical reactions. Effect of humic substances on these processes. Concurrently scheduled with course C164. S/U or letter grading.

M270. Work and Health. (4) (Formerly numbered 270.) (Same as Community Health Sciences M278.) Lecture, three hours; practicum, one hour. Recommended preparation: graduate-level methods/statistics course, basic epidemiology. Designed for graduate students. Exploration of impact of work on physical and psychological health in context of newly emerging discipline. Focus on psychosocial models, measurement (including hands-on experience), contextual factors (gender, ethnicity, social class), and how work stressors can be ameliorated. S/U or letter grading.

C280. Principles of Nanobiological Interactions and Nanotoxicology. (4) Lecture, four hours. Preparation: basic understanding of biology and chemistry at level required for admission to University of California at undergraduate level in engineering, physical, or natural sciences. Introduction to commonly used vocabulary in nanoscience required to appreciate biological interactions and potential toxicity of nanomaterials. Discussion of synthesis and physical-chemical characterization of engineered nanomaterials. Development of understanding of unique properties of engineered nanomaterials and how these properties contribute to biological interactions. Relation of properties of engineered nanomaterials to their potential for transport, reactivity, uptake, and toxicity in natural environments and in body. Concurrently scheduled with course C180. S/U or letter grading.

296A-296N. Research Topics in Environmental Health Sciences. (2 each) Seminar, two hours. Advanced study and analysis of current topics in environmental health sciences. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading:

296A. Coastal Ecological Processes and Problems.

296B. Teratogenesis.

296C. Toxicology and Environmental Health Policy.

296D. Economic Impacts of Contamination and Remediation of Coastal Waters.

296E. Molecular Topics in Boron Biology.

296F. Toxicology and Exposure Assessment of Toxic Chemicals.

296G. Advances in Aerosol Technology.

296H. Occupational Safety and Ergonomics.

296I. Industrial and Environmental Hygiene.

296J. Germ Cell Cytogenetic/Genetic Biomarkers.

296K. Aquatic Chemistry.

296L. Water Science and Health.

296M. Experimental and Modeling Studies of Atmospheric Pollution.

296N. Genetic Toxicology.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

400. Field Studies in Environmental Health Sciences. (2 or 4) Fieldwork, to be arranged. Field observation and studies in selected community environmental health organizations. Students must file field placement and program training documentation on form available from Student Affairs Office. May not be applied toward M.S. minimum course requirement; 4 units may be applied toward 44-unit minimum total required for M.P.H. degree. Letter grading.

401. Environmental Measurements. (4) Lecture, two hours; laboratory, four hours. Requisites: courses C200A, C200B, Chemistry 20A, 30AL. Instrumental methods for laboratory and field applications to assess quantity of environmental pollutants in air, food, and water, and to assess degree of exposure to such factors as noise and radiation. Letter grading.

410A. Instrumental Methods in Environmental Sciences. (4) Lecture, four hours; discussion, two hours; other, two hours. Preparation: one year each of physics, chemistry, and biology. Theory and principles of instrumental methods through lectures and group discussions. Letter grading.

410B. Instrumental Methods Laboratory in Environmental Health Sciences. (4) Lecture, one hour; discussion, one hour; laboratory, four hours; other, two hours. Preparation: one year each of physics, chemistry, and mathematics. Requisites: courses C200A, C200B. Laboratory techniques and instrumentation used in preparation and analysis of biological, environmental, and occupational samples. Letter grading.

M411. Environmental Health Sciences Seminar. (2) (Same as Environmental Science M411.) Seminar, two hours. Required of graduate environmental health sciences students for one term each year. Current topics in environmental health sciences and environmental science and engineering. May be repeated for credit. S/U grading.

M412. Effective Technical Writing. (2) (Same as Environmental Science and Engineering M412.) Lecture, one hour. Essentials of grammar, punctuation, syntax, organization, and format needed to produce well-written journal articles, research reports, memoranda, letters, and résumés. Emphasis on accuracy, clarity, conciseness, and avoidance of common errors in advanced technical writing, using critique, exercises, and examples. S/U grading.

454. Health Hazards of Industrial Processes. (4) Lecture, two hours; field trips, four hours. Requisite: course 255. Industrial processes and operations and occupational health hazards that arise from them. Letter grading.

461. Water Quality and Health. (4) Lecture, three hours; discussion, one hour. Requisites: courses C200A, C200B, 401. Introduction to water quality, with coverage of hydrology, water chemistry, and various chemical contaminants that may affect human health. Various treatment methods and health implications. S/U or letter grading.

470. Environmental Hygiene Practices. (2) Lecture, two hours. Requisites: courses C200A, C200B, 401, Epidemiology 100. Field principles and practices of environmental sanitation as applicable to sanitarians. Topics include theory, code enforcement, and inspection procedures for applicable environmental topics areas. S/U or letter grading.

M471. Improving Worker Health: Social Movements, Policy Debates, and Public Health. (4) (Same as Community Health Sciences CM470 and Urban Planning M470.) Lecture, three hours; fieldwork, two hours. Examination of intersection between work, health, and environment, analysis of social causes of health disparities, investigation of historical trends and social movements, interpretation of current policy debates, and development of innovative interventions. S/U or letter grading.

495. Teacher Preparation in Environmental Health Sciences. (2) Seminar, two hours. Preparation: 18 units of cognate courses in area of specialization. May not be applied toward master's degree minimum total course requirement. May be repeated for credit. S/U grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. No more than 8 units may be applied toward master's degree minimum total course requirement; may not be applied toward minimum graduate course requirement. S/U grading.

596. Directed Individual Study or Research. (2 to 8) Tutorial, to be arranged. Limited to graduate students. Individual guided studies under direct faculty supervision. Only 4 units may be applied toward M.P.H. and M.S. minimum total course requirement. May be repeated for credit. S/U or letter grading.

597. Preparation for Master's Comprehensive or Doctoral Qualifying Examinations. (2 to 8) Tutorial, to be arranged. Limited to graduate students. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

598. Master's Thesis Research. (2 to 10) Tutorial, four hours. Only 4 units may be applied toward M.P.H. and M.S. minimum total course requirement; may not be applied toward minimum graduate course requirement. May be repeated for credit. S/U grading.

599. Doctoral Dissertation Research. (2 to 10) Tutorial, four hours. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

ENVIRONMENTAL SCIENCE AND ENGINEERING

*Interdepartmental Program
School of Public Health*

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Richard F. Ambrose, Ph.D., *Chair*

Faculty Administrative Committee

Richard F. Ambrose, Ph.D. (*Environmental Health Sciences*)
Randall D. Crane, Ph.D. (*Urban Planning*)
Curtis D. Eckhart, Ph.D. (*Environmental Health Sciences*)
Thomas W. Gillespie, Ph.D. (*Geography*)
Malcolm S. Gordon, Ph.D. (*Ecology and Evolutionary Biology*)
Matthew E. Kahn, Ph.D. (*Institute of the Environment and Sustainability*)
Vasilios I. Manousiouthakis, Ph.D. (*Chemical and Biomolecular Engineering*)
Michael K. Stenstrom, Ph.D. (*Civil and Environmental Engineering*)
Keith D. Stolzenbach, Ph.D. (*Civil and Environmental Engineering*)
Irwin H. Suffet, Ph.D. (*Environmental Health Sciences*)
Richard Turco, Ph.D. (*Atmospheric and Oceanic Sciences, Institute of the Environment and Sustainability*)
Arthur M. Winer, Ph.D. (*Environmental Health Sciences*)

Scope and Objectives

The UCLA Environmental Science and Engineering (ESE) Program was founded in 1973 by Nobel laureate Dr. Willard Libby, who perceived a need to train environmental scientists, engineers, and policymakers in a more interdisciplinary manner than is afforded by traditional Ph.D. programs. After three decades, Dr. Libby's vision has in fact been realized with the evolution of the program from an experimental approach into a key component of the overall effort to train environmental professionals at UCLA.

To date the program has awarded the Doctor of Environmental Science and Engineering (D.Env.) degree to over 200 students, and UCLA remains unique in the country in awarding such a degree. Many graduates have gone

on to occupy critical positions in environmental research, remediation, and policy throughout the major environmental agencies in California and the nation. Other graduates have risen to senior positions in private sector companies conducting environmental research and remediation. Still other graduates are applying scientific solutions to environmental problems at national laboratories such as Oak Ridge and Lawrence Livermore Laboratories and at research institutes such as the RAND Corporation.

Although many participating interdepartmental faculty members are from the College of Letters and Science and the Henry Samueli School of Engineering and Applied Science, the program is administered through the School of Public Health where a core faculty is based in the Department of Environmental Health Sciences. No undergraduate major or master's degree is offered.

The program is designed to train multidisciplinary professionals with an appropriate balance of breadth and specific skills, based on a strong master's-level foundation in a science or engineering discipline. The curriculum consists of formal coursework across a full spectrum of relevant physical, biological, social, and engineering disciplines, as well as interdisciplinary research training through nine-month problems courses. Because the D.Env. degree is not a specialized research degree in the manner of a Ph.D., the usual extended research training period in residence at UCLA associated with a Ph.D. is replaced by an 18- to 36-month internship in an appropriate government agency, national laboratory, or private industry, during which in-depth study of an environmental problem leads to a dissertation.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degree

The Environmental Science and Engineering Program offers the Doctor of Environmental Science and Engineering (D.Env.) degree.

Environmental Science and Engineering

Graduate Courses

277. Leaders in Sustainability. (2) Lecture, two hours. Common course for all students participating in Leaders in Sustainability Program, including those from engineering, law, management, public affairs, and public health. Creation of environment for academically based discussions on various sustainability-related themes, capitalizing on wide mix of disciplines represented among participating students. Sessions feature UCLA faculty members, external speakers, and leadership skills to help students learn more about how to best put their interests in sustainability to use. S/U grading.

400A. Environmental Science and Engineering Problems Course. (8) Discussion, eight hours. Primarily designed for environmental science and engineering doctoral students. Multidisciplinary technical and socioeconomic analysis and prognosis of significant current environmental problems. In Progress grading (credit to be given only on completion of courses 400B and 400C).

400B. Environmental Science and Engineering Problems Course. (8) Discussion, eight hours. Requirement: course 400A. Multidisciplinary technical and socioeconomic analysis and prognosis of significant current environmental problems. In Progress grading (credit to be given only on completion of course 400C).

400C. Environmental Science and Engineering Problems Course. (8) Discussion, eight hours. Requirement: course 400B. Multidisciplinary technical and socioeconomic analysis and prognosis of significant current environmental problems. Letter grading.

400D. Environmental Science and Engineering Problems Course. (8) Discussion, eight hours. Preparation: successful completion of internship approved by doctoral committee and program director. Requirement: course 400C. Multidisciplinary technical and socioeconomic analysis and prognosis of significant current environmental problems. S/U or letter grading.

410A-410B-410C. Environmental Science and Engineering Workshops. (2-2-2) Discussion, two hours. Primarily designed for environmental science and engineering doctoral students who are conducting problems courses. Development of multidisciplinary skills essential to solution of environmental problems studied within courses 400A through 400D. Development of presentation skills. S/U grading.

M411. Environmental Health Sciences Seminar. (2) (Same as Environmental Health Sciences M411.) Seminar, two hours. Required of graduate environmental health sciences students for one term each year. Current topics in environmental health sciences and environmental science and engineering. May be repeated for credit. S/U grading.

M412. Effective Technical Writing. (2) (Same as Environmental Health Sciences M412.) Lecture, one hour. Essentials of grammar, punctuation, syntax, organization, and format needed to produce well-written journal articles, research reports, memoranda, letters, and résumés. Emphasis on accuracy, clarity, conciseness, and avoidance of common errors in advanced technical writing, using critique, exercises, and examples. S/U grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. Directed Individual or Tutorial Studies. (2 to 8) Tutorial, to be arranged. Supervised investigation of advanced environmental problems. S/U grading.

EPIDEMIOLOGY

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Roger Detels, M.D., M.S.
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David Heber, M.D., Ph.D.
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Zuo-Feng Zhang, M.D., Ph.D.

Professors Emeriti

Lawrence R. Ash, Ph.D.
Ralph R. Frerichs, D.V.M., Dr.P.H.
Barbara R. Visscher, M.D., Dr.P.H.

Associate Professors

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Gloria E. Mao, Ph.D., *in Residence*
Anne W. Rimoin, Ph.D.
Michelle H. Wilhelm-Turner, Ph.D., *in Residence*

Adjunct Professors

O. George W. Berlin, Ph.D.
Marc Bulterys, Ph.D.
James R. Greenwood, Ph.D., M.P.H.
Scott Haldeman, M.D., Ph.D., F.R.C.P.
Mia Hashibe, Ph.D.
Paul A. Simon, M.D., M.P.H.
Marc A. Strassburg, Dr.P.H.
Nathan D. Wong, Ph.D.
Zunyou Wu, Ph.D.

Adjunct Associate Professors

Deborah L. Ackerman, Ph.D.
Sydney Maureen Harvey, Ph.D.
Peter R. Kerndt, M.D., M.P.H.
Jack D. Sahl, Ph.D.
Vontanak Saphonn, Ph.D.

Adjunct Assistant Professors

Julia N. Bailey, Ph.D.
Brian D. Bradbury, M.A., Ds.C.
Catherine L. Carpenter, Ph.D.
Chun Chao, Ph.D.
Binh Y. Goldstein, Ph.D.
Nina T. Harawa, Ph.D., M.P.H.
Paul T. Hsu, Ph.D., M.P.H.
Shehnaz K. Hussain, Ph.D.
Marjan Javanbakht, Ph.D.
Mark A. Malek, Ph.D.
Roberta M. Malmgren, Ph.D.
Ying Ying Meng, Dr.P.H.
Shira C. Shafir, Ph.D., M.P.H.
Lisa V. Smith, M.S., Dr.P.H.

Visiting Professor

Zunyou Wu, M.D., Ph.D., M.P.H., M.S.

Scope and Objectives

Epidemiology has been defined as the study of the distribution and determinants of disease and injury in human populations. Epidemiologists study variations of disease in relation to such factors as age, sex, race, occupational and social characteristics, place of residence, susceptibility, exposure to specific agents, or other pertinent characteristics. Also of concern are the temporal distribution of disease, examination of trends, cyclical patterns, and intervals between exposure to causative factors and onset of disease. The scope of the field extends from study of the patterns of disease to the causes of disease and to the control or preven-

tion of disease. What distinguishes epidemiology from other clinical sciences is the focus on health problems in population groups rather than in individuals.

Epidemiology is a young field with constantly expanding boundaries. The range of activities that may be at least partly epidemiologic includes determination of the health needs of populations, investigation and control of disease outbreaks, study of environmental and industrial hazards, evaluation of preventive or curative programs or treatments, and evaluation of the effectiveness and efficiency of intervention or control strategies. Many tools of epidemiology are borrowed from other fields such as microbiology, immunology, medicine, statistics, demography, and medical geography.

There is a growing core of purely epidemiologic methodology that includes not only statistical methodology and principles of study design, but a unique way of thinking that is beyond the rote memorization of rules. The contribution of epidemiology to any study involving groups of people is being increasingly recognized and demanded.

Epidemiologists may work in many settings, including international health agencies, state and local health departments, federal government agencies and health programs, health maintenance organizations, colleges and universities, and numerous research projects privately and publicly sponsored.

The objectives of the Department of Epidemiology fall into three broad categories—research, teaching, and community service. Degrees offered include the M.S. and Ph.D. in Epidemiology and, through the School of Public Health, the M.P.H. and Dr.P.H. with a specialization in epidemiology (see Public Health Schoolwide Programs).

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Epidemiology offers Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Epidemiology.

Epidemiology

Upper Division Courses

100. Principles of Epidemiology. (4) Lecture, two hours; discussion, four hours. Preparation: one full biological sciences course. Not open for credit to students with credit for course 200A, 200B, or 200C. Introduction to epidemiology, including factors governing health and disease in populations. Letter grading.

197. Individual Studies in Epidemiology. (2 to 4) Tutorial, four hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200A. Methods I: Basic Concepts and Study Designs. (6) Lecture, six hours; discussion, four hours. Enforced requisite or corequisite: Biostatistics 100A. Introduction to basic concepts, principles, and methods of chronic and infectious disease epidemiology. Letter grading.

200B. Methods II: Prediction and Validity. (6) Lecture, six hours; discussion, four hours. Enforced requisites: course 200A, Biostatistics 100A, 100B. Introduction to basic concepts, principles, and methods of chronic and infectious disease epidemiology. Letter grading.

200C. Methods III: Analysis. (6) Lecture, four hours; laboratory, two hours. Enforced requisites: courses 200A, 200B. Introduction to basic concepts, principles, and methods of epidemiologic data analysis. Letter grading.

203. Topics in Theoretical Epidemiology. (2) Lecture, two hours. Selected topics from current research areas in epidemiologic theory and quantitative methods. Topics selected from biologic models, epidemiologic models, problems in inference, model specification problems, design issues, analysis issues, and confounding. May be repeated for credit with consent of instructor. S/U grading.

M204. Logic, Causation, and Probability. (4) (Same as Statistics M243.) Lecture, four hours. Preparation: two terms of statistics or probability and statistics. Recommended requisite: course 200C. Principles of deductive logic and causal logic using counterfactuals. Principles of probability logic and probabilistic induction. Causal probability logic using directed acyclic graphs. S/U or letter grading.

M211. Statistical Methods for Epidemiology. (4) (Same as Biostatistics M211 and Statistics M250.) Lecture, four hours. Preparation: two terms of statistics (such as Biostatistics 100A, 100B). Requisites: courses 200B, 200C. Concepts and methods tailored for analysis of epidemiologic data, with emphasis on tabular and graphical techniques. Expansion of topics introduced in courses 200B and 200C and introduction of new topics, including principles of epidemiologic analysis, trend analysis, smoothing and sensitivity analysis. S/U or letter grading.

M212. Statistical Modeling in Epidemiology. (4) (Same as Biostatistics M209.) Lecture, four hours. Preparation: two terms of statistics (three terms recommended). Recommended: course M204 or M211. Principles of modeling, including meanings of models, a priori model specification, translation of models into explicit population assumptions, model selection, model diagnostics, hierarchical (multilevel) modeling. S/U or letter grading.

M218. Questionnaire Design and Administration. (4) (Same as Community Health Sciences M218.) Lecture, four hours. Requisites: courses 200B and 200C, or Community Health Sciences 211A and 211B. Design, testing, field use, and administration of data collection instruments, with particular emphasis on questionnaires. Letter grading.

220. Principles of Infectious Disease Epidemiology. (4) Lecture, three hours. Requisite: course 100 or 200A. Ascertainment of infection, transmission, and epidemiological parameters rather than clinical and pathological aspects. Specific diseases discussed in depth to illustrate epidemiologic principles. S/U or letter grading.

222. Arthropods as Vectors of Human Diseases. (4) Lecture, four hours. Requisites: courses 200A, 200B, and 200C (or 100), 220. Comprehensive overview of morphology, systematics, natural history, host/vector/pathogen relationships, and spectrum of diseases carried by arthropods for graduate students,

public health professionals, and medical doctors seeking information on global prevalence of arthropod-borne diseases. Letter grading.

223. Biology and Ecology of Human Parasitic Diseases. (4) Lecture, four hours. Information on all aspects of parasitic organisms causing human disease, including their morphology, biology, means of diagnosis, and diseases they cause. From epidemiological perspective, special emphasis on way in which parasites maintain themselves in nature and manner in which organisms are transmitted to people. Letter grading.

224. Zoonotic Diseases and Public's Health. (4) Lecture, four hours. Examination of wide variety of infectious disease agents (viruses, bacteria, and protozoan and helminth parasites) causing diseases in individuals and populations. Emphasis on how these diseases exist in natural environment, how they are transmitted from animals to humans, and methods for their prevention and control. Letter grading.

M225. Public Health Microbiology. (4) (Formerly numbered 225.) (Same as Environmental Health Sciences M220.) Lecture, four hours. Preparation: introductory microbiology. Requisites: courses 200A, 200B, and 200C (or 100). Corequisite: course M225L. Role of public health laboratory is to support testing needs of programs. To successfully fulfill this role, laboratory must provide information based on most sensitive and specific technologies available. Coverage of common infectious disease agents of public health importance and definition of impact of molecular biology on disease detection and epidemiology in modern public health laboratory. S/U or letter grading.

M225L. Public Health Laboratory. (4) (Formerly numbered 225L.) (Same as Environmental Health Sciences M220L.) Laboratory, five hours. Preparation: introductory microbiology. Corequisite: course M225. Public health laboratory techniques for detection and identification of pathogenic microorganisms. S/U or letter grading.

M226. Global Health Measures for Biological Emergencies. (4) (Formerly numbered 226.) (Same as Ecology and Evolutionary Biology M226.) Lecture, four hours. Requisite: course 220. Mitigation of bioterrorism falls outside traditional public health programs and public health graduate education. Because of seriousness of such threats, it is important that individuals trained in public health understand problems and responses. Letter grading.

227. AIDS: Major Public Health Challenge. (4) Lecture, four hours. Requisites: courses 200A, 200B, and 200C (or 100), Biostatistics 100A or 110A. Presentation of epidemiologic, biologic, psychological, and clinical characteristics of AIDS and HIV-1 infection. Discussion of policy implications and intervention strategies. S/U or letter grading.

228. Biology of HIV. (4) Lecture, three hours. Preparation: two biology courses. Requisites: course 100, Biostatistics 100A. Overview of virologic and immunologic aspects of HIV disease for epidemiology or other health disciplines. Brief discussion of clinical manifestations and biosafety in laboratory. Letter grading.

229. Epidemiology of Foodborne Illnesses. (2) Lecture, two hours. Requisites: courses 200A, 200B, and 200C (or 100), Biostatistics 100A. Food poisoning is significant cause of morbidity and mortality in both developing and developed world. Examination of etiologic agents of food poisoning and factors specific to foods that allow them to become agents of disease transmission. S/U or letter grading.

230. Epidemiology of Sexually Transmitted Diseases. (4) Lecture, four hours. Requisites: courses 200A, 200B, and 200C (or 100). Sexually transmitted diseases; medical/biological aspects, epidemiology and control in developed and developing countries. S/U or letter grading.

231. Principles of Control of Infectious Diseases. (2) Lecture, two hours. Requisites: courses 200A, 200B, 200C, 220. Comprehensive study of tools for control of infectious diseases and application of these

tools in public health programs to achieve epidemiologic impact on disease reduction, elimination, or eradication. Letter grading.

232. Methods in STI/HIV Epidemiology. (2) Lecture, two hours. Requisites: courses 200A, 200B, and 200C (or 100). Introduction to range of different methodologies used to collect data and conduct analysis on reproductive epidemiology topics, including methods that produce quantitative data and methods that produce qualitative data, with emphasis on use of methods appropriate for challenging and sensitive research topics such as sexual behavior, abortion use, and sexual abuse. Letter grading.

240. Cardiovascular Epidemiology. (2) Lecture, two hours. Topics include definition, pathogenesis, descriptive epidemiology, magnitude of risk factors, strategies for prevention, lipoprotein metabolism, and epidemiology of diabetes, hypertension, and chronic lung disease. Letter grading.

242. Cancer Epidemiology. (4) Lecture, four hours. Requisites: courses 200A, 200B, and 200C (or 100). Introduction to basic concepts of cancer and molecular and genetic epidemiology. Review of current epidemiologic research in cancer in recent medical and epidemiological literature. Research proposal on cancer-related topic required. S/U or letter grading.

243. Molecular Epidemiology of Cancer. (4) Lecture, four hours. Requisite: course 242 or 295. Introduction to basic concepts and methodology of molecular epidemiology of cancer and review of current molecular epidemiologic research of cancer in recent medical and epidemiological literature. S/U or letter grading.

244. Research Methods in Cancer Epidemiology. (2) Lecture, two hours. Requisites: courses 200A, 200B, and 200C (or 100), Biostatistics 100A. Biologic, quantitative, philosophical, and administrative considerations in epidemiologic cancer research. Hypothesis specification and choice of study design. Uses of descriptive epidemiology, cohort studies, case control studies. Clustering, screening, and cancer control. Means of identifying subjects and controls. Design of instruments. Sources of bias and confounding. S/U or letter grading.

246. Epidemiology of Aging. (2) Lecture, two hours. Requisites: courses 200A, 200B, and 200C (or 100). Epidemiologic methods of estimating present and future burdens of aging: morbidity, disability, and dependency. Epidemiology of major disabling conditions affecting elderly. Evaluation of possible intervention strategies. Methodologic issues in geriatric epidemiology. S/U or letter grading.

247. Epidemiology of Injuries in Elderly. (2) Lecture, two hours. Requisite: course 100. Description of frequency of, risk factors for, and possibilities of preventing injuries in elderly populations. Comparison of injury outcomes (morbidity and mortality) in younger versus older populations. Emphasis on methodologic issues of studying elderly people. S/U or letter grading.

248. Psychiatric Epidemiology. (2) Lecture, two hours. Requisites: courses 200A, 200B, and 200C (or 100). Introduction to basic concepts and research methods in psychiatric epidemiology. Topics include case definition, study design, instrumentation, and epidemiology of selected psychiatric disorders. Letter grading.

249. Genetic Epidemiology I. (2) Lecture, two hours. Preparation: at least one course in epidemiology, biostatistics, and genetics. Basic concepts in emerging field of genetic epidemiology, with principal focus on genetic study of complex diseases, determining genetic contributions to disease, identifying genes, and characterizing their main effects and interactions with environmental factors. S/U or letter grading.

251. Epidemiology of Nonintentional Injuries. (4) Lecture, four hours. Requisites: courses 200A, 200B, and 200C (or 100), Biostatistics 100A. Pertinent epidemiology methods for study of nonintentional trauma, including that from motor vehicle crashes, occupational exposures, falls, and other major external causes, that focus on research approaches, data

sources, analytical techniques. Substantive findings on related subproblem areas presented for critical review. Letter grading.

M252. Epidemiologic Methods in Violent Injury. (4) (Formerly numbered 252.) (Same as Environmental Health Sciences M211.) Lecture, four hours. Requisites: courses 200A, 200B, and 200C (or 100). Description and critical evaluation of epidemiologic methods in approaches to understanding incidence risk factors and prevention strategies of violence and violence-related injury. Letter grading.

253. Acute Traumatic and Chronic Repetitive Injuries from Work-Related Exposures. (2) Lecture, two hours; discussion, one hour. Requisites: course 100, Biostatistics 100A. Lectures and discussions on magnitude, scope, research approaches, and intervention strategies for work-related acute traumatic and chronic repetitive (musculoskeletal) injuries. Emphasis on injury research methods for all external causes of injury, utilizing epidemiology for high-risk group and risk-factor identification and injury prevention. S/U or letter grading.

254. Nutritional Epidemiology I. (4) Lecture, two hours; discussion/laboratory exercise, one hour. Preparation: introductory biostatistics and epidemiology courses. Review of all aspects of contemporary nutrition sciences that require application of epidemiologic principles and methods, ranging from food-borne outbreak investigation to evidence-based regulatory assessment of health claims for foods. Experience in actual world of collecting, analyzing, and interpreting data related to nutrition and health or disease outcomes. S/U or letter grading.

M255. Keeping Children Safe: Causes and Prevention of Pediatric Injuries. (2) (Same as Community Health Sciences M255.) Lecture, two hours. Injuries have been leading killer of children in U.S. for decades. Children have specific risk factors for injuries, many of which are preventable. Presentation of approaches to research and prevention of pediatric injuries. Letter grading.

257. Advanced Nutritional Epidemiology. (2) Lecture, one hour; discussion, one hour. Preparation: introductory biostatistics and epidemiology courses. Requisite: course 254. Intended primarily for doctoral students interested in doing epidemiologic research. Methodological aspects of research in nutritional epidemiology. Topics include why and how to conduct validation studies, adjustment for energy intake, correction of measurement error. Methods related to genetic polymorphism, biochemical markers, gene-nutrient interaction in chronic diseases. Theoretical as well as practical aspects. S/U or letter grading.

258. Epidemiology of Obesity, Diabetes, and Related Disorders. (4) Lecture, two hours; laboratory, two hours. Preparation: basic biochemistry, epidemiology, molecular biology, physiology, and statistics courses. Survey of entire landscape of nutritional, biochemical, and genetic aspects of obesity and diabetes and their microvascular and macrovascular complications. Review of descriptive and analytical epidemiology of these seemingly distinct yet clearly clustered disorders, including so-called metabolic syndrome. Study of distributions and determinants of these disorders in Westernized populations to appreciate how and why these epidemics occurred. Through case studies students learn process of generating etiologic hypotheses that can be tested using modern molecular epidemiologic methods. Techniques and principals of molecular genetics relevant to epidemiologic studies. Analysis of real data sets that include both genotype and phenotype information, with emphasis on examination of various gene/environment interactions. S/U or letter grading.

259. Disaster Epidemiology. (2) Lecture, two hours. Requisites: courses 200A, 200B, and 200C (or 100), Community Health Sciences 295. Introduction to epidemiologic methodology to study disasters and their health outcomes, including surveillance, loss estimation, risk factor assessment, intervention, and evaluation. Letter grading.

260. Environmental Epidemiology. (2 or 4) Lecture, three hours. Requisites: courses 200A, 200B, and 200C (or 100). Epidemiologic methods applied to evaluation of human health consequences of environmental hazards. Topics include air pollution, pesticides, drinking water contaminants, use of GIS. Review of recently completed environmental studies published in peer-reviewed literature. S/U or letter grading.

261. Occupational Epidemiology. (4) Lecture, two hours; discussion, two hours. Requisites: courses 200A, 200B, and 200C (or 100). Methodological considerations, approaches, and limitations in epidemiological studies of occupational groups and environments. S/U or letter grading.

262. Seminar: Environmental and Occupational Cancer Epidemiology. (2) Seminar, two hours. Requisites: courses 200A, 200B, and 200C (or 100). Discussion of examples of recent epidemiologic studies, with focus on environmental and occupational exposures, especially in areas where controversies have arisen such as for electromagnetic fields and childhood leukemia, and bladder cancer and trihalomethanes levels of drinking water. S/U or letter grading.

263. Exposure Assessment in Occupational and Environmental Epidemiology. (2) Lecture, two hours. Requisites: courses 200A, 200B, and 200C (or 100). Exposure assessment is often most challenging aspect of epidemiologic studies of occupational and environmental hazards. Focus on integration of industrial hygiene principles and epidemiologic methods to improve exposure assessment protocols and exposure analyses for occupational/environmental health studies. S/U or letter grading.

265. Epidemiology Methods in Occupational and Environmental Health. (2) Lecture, two hours. Introduction to epidemiology methods applied to evaluation of human health consequences of occupational and environmental hazards, including study design, exposure assessment, and statistical techniques commonly encountered in research focused on assessing adverse health effects resulting from occupational and environmental exposures. Topics include clusters, meta-analysis, risk assessment, and policy development. Illustrated by case studies, with focus on techniques to critically evaluate and interpret current literature. Letter grading.

266. Global Health and Tropical Medicine. (2) Lecture, two hours. Introduction to tropical diseases and global health. How humanitarian health issues, maternal-child health, research in tropics, World Health Organizations, and political/medical constraints all are related with respect to health on worldwide scale. Letter grading.

267. Methodologic Issues in Reproductive Epidemiology. (2) Seminar, two hours. General discussion of methodologic issues important to epidemiologic studies of reproductive outcomes, including fertility, low birth weight, prematurity, birth defects, pregnancy loss, and perinatal mortality. Approaches to study design and exposure assessment and identification of potential sources of bias illustrated through review of recent studies published in literature and with particular focus on occupational and environmental exposures and birth cohorts. S/U or letter grading.

268. Introduction to Pharmacoepidemiology. (2) Lecture, two hours. Requisites: courses 200A, 200B, 200C. Pharmacoepidemiology is application of epidemiologic knowledge, reasoning, and methods to study of effects and uses of drugs. Survey of contemporary roles of pharmacoepidemiology in drug development and public health, with historical background of its evolution and projections of future prospects. S/U or letter grading.

270. Behavioral Epidemiology. (2) Lecture, two hours. Requisite: course 100 or 200A. Introduction to range of different methodologies used to collect data and conduct analyses on behaviors studied in epidemiology research. How to collect, analyze, and interpret data on behaviors that can be associated with disease outcomes, including methods to collect survey data (i.e., design of questionnaires, interviewing techniques, use of technology to collect data) and methods to collect and analyze qualitative data (e.g.,

ethnographic interviews, focus groups, systematic observations). Overview information on epidemiology of key behavioral factors affecting human health, including sexual risk behaviors, substance use, physical activity, and healthcare utilization. S/U or letter grading.

271. Assessing Validity of Complementary and Alternative Healthcare Procedures. (2) Lecture, two hours. Exploration of validity of alternative and complementary healthcare procedures, with special emphasis on disorders in field of neurology. Focus on methods of analyzing clinical and experimental research published in journals that provide support or refute claims made by practitioners of these procedures. Primary procedures include acupuncture, chiropractic, manipulation, massage, and herbal remedies. Letter grading.

M272. Social Epidemiology. (4) (Same as Community Health Sciences M272.) Lecture, two hours; discussion, one hour. Requisite: course 100. Relationship between sociological, cultural, and psychosocial factors in etiology, occurrence, and distribution of morbidity and mortality. Emphasis on lifestyles and other socioenvironmental factors associated with general susceptibility to disease and subsequent mortality. Letter grading.

273. Responsible Conduct of Research in Global Health. (2) Lecture, one hour; discussion, one hour. Requisite: Community Health Sciences 200. Introduction to fundamental principles of public health ethics, current ethical procedures, guidelines, and requirements, and ethical issues facing public health professionals working in developing countries. History of public health issues, unique ethical issues of research in developing countries, analysis of ethical implications of informed consent, responsibility to study community, mechanisms of study approval, role of funders, and role and responsibilities of review boards. S/U or letter grading.

280. Connecting Epidemiological, Medical, and Mathematical Aspects of Infectious Diseases. (4) Lecture, four hours. Requisites: courses 200A, 200B, 200C, 220. To deepen and further integrate knowledge on infectious diseases, focus on small number of them to enable in-depth study. Each to be presented and discussed from three viewpoints that facilitate greater understanding: epidemiology, immunology and molecular basis, and epidemiologic and mathematical analysis. Letter grading.

291. Seminar: Special Topics in Epidemiology. (2) Seminar, two hours. Requisites: courses 200A, 200B, and 200C (or 100). Review of current epidemiologic research contained in recent medical literature. May be repeated for credit. S/U or letter grading.

292. Advanced Seminar: Epidemiology. (2) Seminar, two hours. Requisites: courses 200A, 200B, 200C. Current research in epidemiology. May be repeated for credit. S/U grading.

293. International HIV/AIDS Seminar. (2) Seminar, two hours. Ongoing discussion of worldwide pandemic of HIV/AIDS, with emphasis on problems of surveillance, reporting, and intervention. Discussion of recent literature. Presentations by fellows from other countries. S/U grading.

294. Epidemiology and Policy of Occupational and Environmental Health Issues. (2) Seminar, two hours. Requisites: courses 200A, 200B, and 200C (or 100) and/or 260. Introduction to demands that go beyond pure science, with focus on issues such as risk communication, potential influence (and ethics) of oversight panels and external review groups on presenting results and conclusions, and interest of government agencies. S/U or letter grading.

295. Seminar: Epidemiology—Cancer. (2) Seminar, two hours. Requisites: courses 200A, 200B, and 200C (or 100). Introduction of basic concepts of cancer epidemiology and review of current epidemiological research in cancer in recent medical and epidemiological literature. May be repeated for credit. S/U or letter grading.

297. Advanced Seminar: Population Genetics and Nutrition. (2) Seminar, three hours. Preparation: basic courses in biochemistry, epidemiology, molecular biology, physiology, and statistics. Designed for second-year master's and doctoral students. Lectures, student presentations, and discussion of key topics of current interest in field of nutrition and gene-nutrient interaction. Assessment of significant area of study in nutrition and genomics in student group projects. Applications cover cancer, cardiovascular disease, diabetes, and obesity. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

400. Field Studies in Epidemiology. (2 or 4) Fieldwork, to be arranged. Field observation and studies in selected community organizations for health promotion or medical care. Students must file field placement and program training documentation on form available from Student Affairs Office. May not be applied toward M.S. minimum course requirement; 4 units may be applied toward 44-unit minimum total required for M.P.H. degree. Letter grading.

402. Advanced Data Analysis in Occupational and Environmental Epidemiology. (4) Lecture, four hours. Preparation: one data management course. Requisites: courses 200B and 200C, or 200B and 261. Development of strategies for analyzing data in occupational and environmental settings. Use of multivariate data analysis techniques typically used in occupational cohort studies, nested case-control studies, and ecologic studies in environmental epidemiology. S/U or letter grading.

M403. Computer Management and Analysis of Health Data Using SAS. (4) (Same as Biostatistics M403B.) Lecture, two hours; laboratory, two hours. Requisites: Biostatistics 100A, 100B (100B may be taken concurrently). Introduction to practical issues in management and analysis of health data using SAS programming language. Cross-sectional and longitudinal population-based data sets to be used throughout to illustrate principles of data management and analysis for addressing biomedical and health-related hypotheses. Letter grading.

M406. Preparing for Smallpox or Other Bioterrorist Events. (2) (Same as Community Health Sciences M406.) Lecture, two hours. Major current public health issue is massive effort to prepare for possible bioterrorist events. Practical application of principles of epidemiology and public health in preparing for smallpox or other bioterrorist events. Letter grading.

410. Management of Epidemiologic Data. (2) Lecture, two hours. Data management for various epidemiologic study designs, confidentiality concerns; data management systems; introduction to mainframe computer. S/U or letter grading.

411. Research Resources in Epidemiology. (2) Lecture, one hour; discussion, one hour. Instruction and practical experience in use of varied bibliographic aids and sources of information, building of reference files, and presentation of research findings for publication. Letter grading.

412. Public Health Surveillance. (2) Lecture, two hours. Requisites: courses 200A, 200B, and 200C (or 100), Biostatistics 100A. Overview of public health surveillance methodology, including (1) design, implementation, and evaluation of surveillance systems, (2) analysis and interpretation of surveillance data, and (3) application of surveillance methods to specific health-related outcomes. Letter grading.

413. Methods of Scientific Communication. (2) Lecture, two hours. Requisites: courses 200A, 200B, and 200C (or 100). Principles of scientific writing and communication. Approaches to developing effective written, oral, and visual presentations of epidemiologic research findings. Communication issues arising in conduct of research, including informed consent process. S/U or letter grading.

414. Practical Epidemiologic Investigations. (2 or 4) Lecture, one or two hours; laboratory, one or two hours. Requisites: courses 200A, 200B, and 200C (or 100). Practical approaches to epidemic investigations presented through problem sets based on actual outbreaks. Data collection, analysis, and written presentation of findings. Letter grading.

415. Epidemiology for Developing Countries. (4) Lecture, four hours. Requisites: courses 200A, 200B, and 200C (and/or 100), Biostatistics 100A. Practical use of epidemiology, microcomputers, and spreadsheet models for estimating morbidity and mortality, developing intervention or prevention strategies, and setting program priorities in Third World settings. Letter grading.

417. Injury Prevention Strategies and Countermeasures. (2) Lecture, two hours. Requisite: course 100. Lectures with discussion on injury prevention strategies and countermeasures, including critical review of effectiveness in public health context. Emphasis on major public health injury problems from assaultive, self-inflicted, or unintentional causes. S/U or letter grading.

M418. Rapid Epidemiologic Surveys in Developing Countries. (4) (Same as Community Health Sciences M418.) Lecture, four hours. Requisites: courses 200A, 200B, and 200C (and/or 100), Biostatistics 100A. Presentation of how to do health surveys in Third World countries. Practical assistance for planning and organizing surveys, including use of microcomputers to develop and test questionnaire, select sample, process and analyze data, and prepare final report. Letter grading.

420. Field Trials in Developing Countries. (4) Lecture, four hours. Requisite: course 100 or 200A or 200B. Introduction to practical concepts and issues in conducting epidemiologic field research in developing countries, including formulating research questions, study site selection, ethical considerations, and logistics of data and specimen collection. S/U or letter grading.

495. Teacher Preparation in Epidemiology. (2) Seminar, two hours. Preparation: 18 units of cognate courses in area of specialization. May not be applied toward master's degree minimum total course requirement. May be repeated for credit. S/U grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. No more than 8 units may be applied toward master's degree minimum total course requirement; may not be applied toward minimum graduate course requirement. S/U grading.

596. Directed Individual Study or Research. (2 to 8) Tutorial, to be arranged. Limited to graduate students. Individual guided studies under direct faculty supervision. Only 4 units may be applied toward M.P.H. and M.S. minimum total course requirement. May be repeated for credit. S/U or letter grading.

597. Preparation for Master's Comprehensive or Doctoral Qualifying Examinations. (2 to 12) Tutorial, to be arranged. Limited to graduate students. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

598. Master's Thesis Research. (2 to 8) Tutorial, to be arranged. Only 4 units may be applied toward M.P.H. and M.S. minimum total course requirement; may not be applied toward minimum graduate course requirement. May be repeated for credit. S/U grading.

599. Doctoral Dissertation Research. (2 to 12) Tutorial, to be arranged. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

ETHNOMUSICOLOGY

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I Nyoman Wenten, Ph.D.

Scope and Objectives

Ethnomusicology involves the study of all kinds of music from all over the world, using a variety of disciplinary perspectives. The Department of Ethnomusicology, the largest and first of its kind in a U.S. university, offers courses that cover the music of virtually every region of the world and of many ethnic groups in the U.S., as well as courses on jazz, popular music, and film music. Most courses combine an interest in music as an art form with questions about how musical art and practice relate to other aspects

of culture, society, politics, and economics. Courses are also given on the philosophy and aesthetics of music and the study of music perception and cognition using experimental methods. In addition to academic courses, the department offers performance ensemble courses in jazz and several world and American music traditions. At the undergraduate level most of the performance courses are open to nonmajors, and many academic courses target nonmajors; prior knowledge of music is not expected or required. The Department of Ethnomusicology is aligned with the Departments of Music and Musicology and aspires to promote productive collaboration between performance and scholarship, a cross-cultural global understanding of the art of music, and preparatory training for a broad range of careers in music after students graduate.

The undergraduate major in Ethnomusicology is offered with two concentrations: one in jazz studies and one in world music with emphases in general world music, performance/composition, public ethnomusicology, and scholarly research. Admission requires an audition/interview. The major provides students with a wide-ranging liberal arts education in music. At its core, this includes (1) comprehensive knowledge of music cultures of the world, (2) understanding of the interrelationship of music, society, and culture, (3) grounding in the basics of Western music theory and musicianship, and (4) the experience of playing in one or several musical ensembles from various traditions around the world.

The concentration in jazz studies seeks to produce students who emerge as outstanding and well-rounded jazz musicians with a strong academic foundation, and to prepare students to enter professional careers in the music world, as well as graduate study in various aspects of music such as composition, arranging, film scoring, jazz performance, research, and teaching.

Beyond the core and emphasis requirements, students in the world music concentration may, through elective courses, prepare for a variety of career goals, including the study of ethnomusicology in graduate school, composing and performing music, working in the music industry, serving society in the nonprofit sector, or becoming a K through 12 music teacher.

At the graduate level, the department offers M.A. and Ph.D. degrees in Ethnomusicology, with a specialization in systematic musicology. Both degree programs train students for future university teaching careers, as well as careers in library science and archiving, the music industry, public service, and music technology. The department provides fellowships, teaching assistantships, and research assistantships for qualified students.

Undergraduate Study

The Ethnomusicology major is a designated capstone major. The capstone project is individualized to each student and requires a creative process either through music perfor-

mance/composition, a research project, or an internship with a self-reflective journal detailing the process. Through that process, students are expected to demonstrate a broad knowledge base and competency in performance, writing, and/or composition and ability to apply knowledge and experience to the specific requirements of the capstone; conceive and successfully complete a project that is expressive of their specific interests and acquired expertise; and display, through written documentation or live presentation, the requisite communication and, in some cases, teamwork required by work in this field.

Ethnomusicology B.A.

Capstone Major

Admission

Applicants are reviewed individually, based on a questionnaire, grade-point average, two letters of recommendation, test scores, a personal statement of purpose, and an interview/audition. Applicants who are unable to travel to UCLA have the option of submitting a videotape of musical performance, following departmental guidelines.

Preparation for the Major

Jazz Studies Concentration

Required: Ethnomusicology 10A, 10B, 10C, 11A, 11B, 11C, one course from 20A or 20B or 20C, 12 units of instruction in jazz performance (course 71), and 12 units of world music performance organizations and/or jazz performance ensembles (courses 91A through 91Z).

World Music Concentration

Required: Ethnomusicology 10A, 10B, 10C, 11A, 11B, 11C, 20A, 20B, 20C, and 12 units of world music performance organizations and/or private instruction in music (courses 91A through 91Z or 92).

The Major

Jazz Studies Concentration—Composition Emphasis

Required: Ethnomusicology M110A, M110B, M111, C122A, C122B, C122C, 125A, 125B, 125C, 127A, 127B, 127C, 129A, 129B, 129C, 163, 183, 6 units of course 161T and/or 177, one 4-unit upper division elective course selected from ethnomusicology, music, or music history, one additional course selected from Ethnomusicology C124, 164, or C165, and one capstone senior recital or project (course 186).

Jazz Studies Concentration—Performance Emphasis

Required: Ethnomusicology M110A, M110B, M111, C122A, C122B, C122C, 127A, 127B, 127C, 129A, 129B, 129C, 183, 12 units of course 161T and/or 177, 12 units of course 171, one 4-unit upper division elective course selected from ethnomusicology, music, or music history, and one capstone senior recital or project (course 186).

World Music Concentration

Required: Ethnomusicology 175 or 181, 183; 12 units from courses 161A through 161Z and/or 162; and a minimum of eight courses (32 to 36 units) from one of the four ethnomusicology emphases (required courses/units vary per emphasis): (1) general world music, (2) performance/composition, (3) public ethnomusicology, or (4) scholarly research. See the departmental counselor for the list of courses for each emphasis.

Emphases (32 to 36 units minimum): To select an emphasis, students who entered the program as freshmen must submit an application to the department in the Fall Quarter of their third year in the program. Students who entered as transfers must select their emphasis during Spring Quarter of their first year of training at UCLA. The application must include (1) an up-to-date transcript, (2) a concise statement by the students explaining why the emphasis has been selected and how it will prepare them for their career goals, and (3) the approval of a faculty member who is a specialist in the emphasis. Students who decide on the general world music emphasis do not need to submit an application.

General World Music (for students interested in general training in world music): In addition to the lower and upper division core requirements, a minimum of eight 4-unit courses is required. Four 4-unit courses must be selected from one of the following groupings—(1) Americas, (2) Africa and Asia, (3) popular music and jazz, or (4) aesthetics, politics, and psychology of music. Students may complete the remaining four courses with other upper division ethnomusicology courses listed under this emphasis, with courses from other emphases, or with Ethnomusicology 188, 197E, or 197S courses

Performance/Composition (for students interested in a career in performance and/or composition): Students who select this emphasis must have a 3.5 grade-point average in departmental lower division core courses and a cumulative 3.0 GPA at the time of application. In addition to the lower and upper division core requirements, a minimum of eight 4-unit courses is required. Students must take four 4-unit courses in this emphasis and a minimum of four 4-unit courses in the general world music emphasis. In addition, they must fulfill the capstone final project requirement (4 units) through a public recital (performance). Students must enroll in Ethnomusicology 199 (2 units) and pass a recital permission jury. Instrumental and vocal performers must present a portion of their recital performance, and composers must present excerpts from their recital scores in front of two faculty members. Students also enroll in Ethnomusicology 186 (2 units) during the term in which they per-

form their recital or their composition(s) are performed

Public Ethnomusicology (for students interested in careers in the music industry, the music business, archiving, or arts administration): Students who select this emphasis must have a 3.5 grade-point average in departmental lower division core courses and a cumulative 3.0 GPA at the time of application. In addition to the lower and upper division core requirements, a minimum of eight 4-unit courses is required. Students must take four 4-unit courses in this emphasis and an additional two 4-unit courses in the general world music emphasis. Students must fulfill the capstone internship requirement, which consists of three terms (8 units minimum) of Ethnomusicology 195B, in an institution approved by the faculty sponsor. Students must write a final research paper (at least 10 pages) at the completion of each internship

Scholarly Research (for students interested in pursuing graduate study): Students who select this emphasis must have a 3.5 grade-point average in departmental lower division core courses and a cumulative 3.25 GPA at the time of application. In addition to the lower and upper division core requirements, a minimum of eight 4-unit courses is required. Students must take four 4-unit courses in this emphasis and may complete the remaining four courses with other upper division ethnomusicology courses listed under this emphasis, with courses from other emphases, or with Ethnomusicology 188, 197E, or 197S courses. Students must also write a capstone thesis (25 to 30 pages) and enroll in Ethnomusicology 199 for at least one term while writing the thesis

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Ethnomusicology offers Master of Arts (M.A.), Candidate in Philosophy (C.Phil.), and Doctor of Philosophy (Ph.D.) degrees in Ethnomusicology.

Ethnomusicology**Lower Division Courses**

5. Music Around World. (5) Lecture, four hours; discussion, one hour; outside study, 10 hours. Overview of world's musical traditions by selecting one or two case studies from each of nine musical world regions: Pacific, East Asia, Southeast Asia, South Asia, Middle East, Africa, Europe, Latin America, and U.S. and Canada. P/NP or letter grading.

10A-10B-10C. World Music Theory and Musicianship. (5-5-5) Lecture, two hours; discussion, four hours; laboratory, two hours; outside study, seven hours. Course 10A is requisite to 10B, which is requisite to 10C. Limited to Ethnomusicology and World Arts and Cultures majors. Introduction to and participation in musical systems of selected world cultures through aural and written notations, vocal and instrumental skills, melodic and rhythmic dictation, improvisation, and composition. Letter grading.

11A-11B-11C. World Music Systems and Structures. (5-5-5) Lecture, four hours; discussion, four hours; outside study, seven hours. Requisite: course 10C. Course 11A is requisite to 11B, which is requisite to 11C. Limited to Ethnomusicology majors. Students must receive grade of C or better to proceed to next course. Advanced study and analysis of musical systems and aesthetic concepts from selected world cultures through aural and written notations, vocal and instrumental skills, melodic and rhythmic dictation, improvisation, and composition. Letter grading.

15. American Life in Music. (4) Lecture, three hours. Impact of ethnicity, race, gender, and other social processes on American music in late 20th century; use of and creativity in music to respond to and shape contemporary social processes. P/NP or letter grading.

20A-20B-20C. Musical Cultures of World. (5-5-5) Lecture, four hours; discussion, one hour; outside study, 10 hours. Traditional and popular musics from many different countries, with introduction to basic ethnomusicological concepts and development of listening and analytical skills. P/NP or letter grading. **20A.** Europe and Americas; **20B.** Africa and Near East; **20C.** Asia.

25. Global Pop. (5) Lecture, four hours; discussion, one hour. Development of world music or world beat, including its meaning and importance to contemporary culture as well as its history and impact. P/NP or letter grading.

30. Music and Media. (5) Lecture, four hours; discussion, one hour. Exploration of ways music is mediated to people by industry, technologies, and corporations. Survey of leading theorists of media and exploration of case studies. P/NP or letter grading.

35. Blues, Society, and American Culture. (5) Lecture, four hours; discussion, one hour. Sociocultural history and survey of blues music tradition from its roots in West Africa to its emergence in African American oral culture, with emphasis on philosophical underpinnings and social and political impact of blues and its influence on development of country, jazz, gospel, rhythm and blues, rock, hip-hop music, and other mediums. P/NP or letter grading.

40. Music and Religion. (5) Lecture, four hours; discussion, one hour. Survey of nature, role, and power of music in religious rituals around world, covering music and ritual of Hinduism, Buddhism, Judaism, Christianity, and Islam, as well as religious traditions of Native Americans and syncretic religious practices in Americas such as African American gospel music, Brazilian Candomble, Cuban Santería, and Haitian vodoun. Letter grading.

45. Music of Bollywood and Beyond. (5) Lecture, four hours; discussion, one hour; outside study, 10 hours. History and development of South Asian film scores in their filmic context, especially omnipresent songs that most distinctively characterize this genre. P/NP or letter grading.

50A-50B. Jazz in American Culture. (5-5) Lecture, four hours; discussion, one hour. Course 50A is not requisite to 50B. Survey of development of jazz in American culture. Discussion of different compositional/performance techniques and approaches that distinguish different sub-styles of jazz from one another, as well as key historical figures that shaped development of jazz from its early years through modern jazz. Important historical social issues (segregation, Depression, World War II, Civil Rights Movement) that intersect with history of U.S. and jazz music. P/NP or letter grading. **50A.** Late 19th Century through 1940s; **50B.** 1940s to Present.

71. Instruction in Jazz Performance. (2) Studio, six hours. Limited to Ethnomusicology jazz studies majors. Knowledge of jazz repertoire, concepts, and techniques gained through private lessons on specific instruments and voice. Students meet weekly with instructor to demonstrate their performance skills and receive assessment of their progress in learning material. May be repeated for maximum of 12 units. Letter grading.

M87. Special Courses in Music. (5) (Same as Music M87 and Music History M87.) Lecture, four hours; discussion, four hours. Limited to undergraduate Ethnomusicology, Music, and Music History majors. Study and analysis of current and/or special topics in ethnomusicology, music, and music history taught by resident and visiting faculty members. May be repeated for credit with topic and instructor change. Letter grading.

91A-91Z. World Music Performance Organizations. (2 each) Activity, three hours. Group performance of traditional vocal and instrumental music of world cultures. May be repeated for credit without limitation. P/NP or letter grading. **91A.** Music and Dance of American Indians; **91B.** Music of Bali; **91C.** Music and Dance of Balkans; **91D.** Music of China; **91E.** Music and Dance of Ghana; **91F.** Music of India; **91G.** Music of Japan; **91H.** Music of Java; **91J.** Music of Korea; **91K.** Music of Mexico; **91L.** Music of Persia; **91N.** Music of Near East; **91P.** Music of African Americans; **91T.** Jazz Orchestra. Preparation: audition. Large group jazz ensemble that performs big band jazz repertoire. Emphasis on improvisational and solo performance skills in traditional big band, Latin jazz, and contemporary jazz genres. Letter grading; **91Z.** Open Ensemble.

92. Private Instruction in Music. (2) Studio, one hour. Limited to Ethnomusicology majors. Private or semiprivate music instruction with distinguished community-based musician, that must be arranged by students and approved by course instructor. May be repeated for credit without limitation. Letter grading.

Upper Division Courses

C100. Audiovisual Archiving in 21st Century. (4) Seminar, three hours. Designed for Ethnomusicology majors. Examination of history, present state, and future of audiovisual archives, with specific focus on ethics, copyright, contracts, fieldwork, preservation, and access and issues related to technology, space, budgets, and staffing. Concurrently scheduled with course C200. P/NP or letter grading.

105. Music Business. (4) Lecture, four hours; outside study, eight hours. Designed for junior/senior Ethnomusicology majors in public ethnomusicology emphasis. How music industry functions and how products are created, marketed, and consumed. Basic information on production of recordings and legal issues faced by musicians, students, and scholars who use music in their work. P/NP or letter grading.

106A. Traditional North American Indian Music. (4) Lecture, four hours. Native North American traditional music and its role in tribal societies. California, Southwest, Pacific Northwest, Northern and Southern Plains, Great Lakes/Eastern Woodlands, and South-eastern culture areas included. P/NP or letter grading.

106B. Contemporary North American Indian Music. (4) Lecture, three hours; discussion, one hour. Contemporary Native North American musical expression, including popular styles (folk, country, rock), intertribal Indian musical genres (powwow), syncretic religious music, and traditional/historic Pan-Indian music. P/NP or letter grading.

107. South American Indian Music. (4) Lecture, four hours; outside study, eight hours. Native South American traditional music and its role in indigenous societies. Topics include relationship between speech and song, use of music by shamans, musical structures, and use of indigenous music in creating nationalist and popular music styles. Letter grading.

M108A-108B. Music of Latin America. (5-5) Lecture, four hours; discussion, one hour. Course M108A is not requisite to 108B. Survey of traditional and contemporary musical culture. P/NP or letter grading.

M108A. Mexico, Central America, and Caribbean Isles. (Same as Chicana and Chicano Studies M108A.); **108B.** Latin South America.

M109. Women in Jazz. (4) (Same as Afro-American Studies M109 and Women's Studies M109.) Lecture, four hours; discussion, one hour. Sociocultural history of women in jazz and allied musical traditions from 1880s to present. Survey of women vocalists, instrumentalists, composers/arrangers, and producers and their impact on development of jazz. P/NP or letter grading.

M110A-M110B. African American Musical Heritage. (5-5) (Formerly numbered CM110A-CM110B.) (Same as Afro-American Studies M110A-M110B.) Lecture, four hours; discussion, one hour. P/NP or letter grading. **M110A.** Sociocultural history and survey of African American music covering Africa and its impact on Americas; music of 17th through 19th centuries; minstrelsy and its impact on representation of blacks in film, television, and theater; religious music, including hymns, spirituals, and gospel; black music of Caribbean and Central and South America; and music of black Los Angeles. **M110B.** Sociocultural history and survey of African American music covering blues, pre-1947 jazz styles, rhythm 'n' blues, soul, funk, disco, hip-hop, and symbiotic relationship between recording industry and effects of cultural politics on black popular music productions.

M111. Ellingtonia. (4) (Same as Afro-American Studies M145.) Lecture, three hours. Music of Duke Ellington, his life, and far-reaching influence of his efforts. Ellington's music, known as "Ellingtonia," is one of largest and perhaps most important bodies of music ever produced in U.S. Covers many contributions of other artists who worked with Ellington, such as composer Billy Strayhorn and musicians Johnny Hodges, Cootie Williams, and Mercer Ellington. P/NP or letter grading.

CM112. African American Music in California. (4) (Same as Afro-American Studies CM112A.) Lecture, four hours. Historical and analytical examination of African American music in California, including history, migration patterns, and urbanism to determine their impact on development of African American music in California. Concurrently scheduled with course CM212. P/NP or letter grading.

113. Music of Brazil. (4) Lecture, three hours. History of ethnic and art music in Brazil, with some reference to Portuguese antecedents. P/NP or letter grading.

M115. Musical Aesthetics in Los Angeles. (4) (Same as Chicana and Chicano Studies M115.) Lecture, three hours. Confronting aesthetics from classical perspective of art as intuition, examination on cross-cultural basis of diverse musical contexts within vast multicultural metropolis of Los Angeles, with focus on various musical networks and specific experiences of Chicano/Latino, African American, American Indian, Asian, rock culture, Western art music tradition, and commercial music industry. P/NP or letter grading.

M116. Chicano/Latino Music in U.S. (5) (Same as Chicana and Chicano Studies M116.) Lecture, four hours; discussion, one hour. Historical and analytical examination of musical expression of Latino peoples who have inhabited present geographical boundaries of U.S. P/NP or letter grading.

117. American Popular Music. (4) Lecture, four hours; discussion, one hour. Survey of history and characteristics of American popular music and its relationship to American culture, with emphasis on 20th-century popular music and its major composers, including comparison between traditional pre-1950 popular music and trends in post-1950 popular music. P/NP or letter grading.

118. Development of Rock. (5) Lecture, four hours. Examination of historical and stylistic development of rock from 1950s to present, with attention to its socio-cultural and political impact on American society and beyond. P/NP or letter grading.

M119. Cultural History of Rap. (5) (Same as Afro-American Studies M107.) Lecture, four hours; discussion, one hour. Introduction to development of rap music and hip-hop culture, with emphasis on musical

and verbal qualities, philosophical and political ideologies, gender representation, and influences on cinema and popular culture. P/NP or letter grading.

120A-120B. Development of Jazz. (4-4) Lecture, four hours; discussion, one hour. Introduction to jazz; its historical background and its development in U.S. P/NP or letter grading.

121. Cross-Cultural Perspectives in Jazz. (4) Lecture, four hours. Exploration of assimilation and retention of jazz from U.S. in various countries, with particular emphasis on cultural and social features that form basis for new jazz-ethnic music blends. P/NP or letter grading.

C122A-C122B-C122C. Jazz Styles and Analysis. (4-4-4) Lecture, four hours; outside study, eight hours. Designed for Ethnomusicology, Music, and Music History majors. In-depth analysis of jazz styles and repertoire intended for students with music backgrounds. Concurrently scheduled with courses C222A-C222B-C222C. Letter grading. **C122A.** Early Jazz to Swing Era; **C122B.** Bebop to Avant-garde; **C122C.** Jazz since Sixties.

123. Music of Bebop. (4) Lecture, three hours. Study of jazz bebop tradition, including analysis of compositions and song forms, styles of improvisation, and developments from 1940 to present. P/NP or letter grading.

C124. Electric Music of Miles Davis. (4) Lecture, four hours; outside study, eight hours. Enforced requisite: course 11C. Careful examination of artistic body of Miles Davis' electric music (1967 to 1991). Influences and impetus that fueled his daring move from acoustic jazz to electric music. Examination of Davis' complex and challenging relationship with music industry as his art moved through periods of multidimensional growth and evolutionary development. Much detail to his use of contemporary jazz, funk, rhythm and blues, rock, southern and west African, Brazilian, European avant-garde, Cuban, Indian, flamenco, and ambient music. Concurrently scheduled with course C224. Letter grading.

125A-125B-125C. Jazz Composition and Arranging. (2-2-2) Lecture, two hours; outside study, four hours. Examination of various aspects of jazz composition. Differentiation between improvisation and notated composition, as well as between composition and arranging, and introduction to basic arranging concepts. Letter grading. **125A.** Early Jazz to Swing Era; **125B.** Bebop to Avant-garde; **125C.** Jazz since Sixties.

126A. Introduction to Jazz Arranging and Orchestration. (2) Seminar, two hours. Requisite: course 129C. Study and practice of skills used in arranging and orchestrating music in jazz idiom. Students create and orchestrate their own arrangements. Study of specific instruments and their unique use and application in jazz (jazz notation and terminology, transposition, woodwind doublings, brass mutes, etc.). Writing for smaller ensembles, culminating with arrangements to be read by one UCLA Jazz Combo. Letter grading.

126B. Jazz Arranging and Orchestration. (2) Seminar, two hours. Enforced requisites: courses 126A, 129C. Continuation of concepts from course 126A, with focus on full sectional writing and in-depth score analysis. Culminates with arrangements to be read by UCLA Jazz Orchestra I. Letter grading.

126C. Advanced Jazz Arranging and Orchestration. (2) Seminar, two hours. Enforced requisites: courses 126A, 126B, 129C. Continuation of concepts from course 126B, with focus on contributions of noteworthy arrangers/orchestrators. Culminates with arrangements to be read by UCLA Jazz Orchestra I. Letter grading.

127A-127B-127C. Jazz Keyboard Harmony I, II, III. (2-2-2) (Formerly numbered 127.) Laboratory, two hours; outside study, four hours. Requisites: courses 11A, 11B, 11C. Course 127A is enforced requisite to 127B, which is enforced requisite to 127C. Not open for credit to students with credit for former course 127. Study of jazz harmony through use of piano keyboard. Letter grading.

129A-129B-129C. Jazz Theory and Improvisation. (2-2-2) Lecture, four hours; outside study, eight hours. Elements of jazz theory and improvisation. Letter grading. **129A.** Basic jazz harmonic constructions, as well as melodic, rhythmic, and harmonic concepts, and how to apply those elements to personal efforts in improvisations. **129B.** Requisite: course 129A with grade of C or better. Medium-level jazz harmonic constructions. **129C.** Requisite: course 129B with grade of C or better. Advanced-level jazz harmonic constructions.

M130. Culture of Jazz Aesthetics. (4) (Same as Anthropology M142R and World Arts and Cultures M136.) Lecture, three hours. Requisite: course 20A or 20B or 20C or Anthropology 9 or 33 or World Arts and Cultures 20. Aesthetics of jazz from point of view of musicians who shaped jazz as art form in 20th century. Listening to and interacting with professional jazz musicians who answer questions and give musical demonstrations. Analytical resources and historical knowledge of musicians and ethnomusicologists combined with those interested in jazz as cultural tradition. P/NP or letter grading.

M131. Development of Latin Jazz. (4) (Same as Music M131.) Lecture, four hours; discussion, one hour. Survey of historical and stylistic development of musical style referred to today as Latin jazz. P/NP or letter grading.

133. European Musics: Politics, Identities, Nationalisms. (5) Lecture, four hours; outside study, 12 hours. Limited to Ethnomusicology, Music, Musicology, Music History, and European Studies majors. European folk, popular, and classical music as practice that shapes ideas about national, ethnic, class, and religious identity and as tool of political domination and resistance. Letter grading.

136A. Music of Africa. (5) (Formerly numbered C136A.) Lecture, four hours; discussion, one hour; outside study, 10 hours. Introduction to music of Africa through general discussion of select topics such as continent and its peoples, function, musician, instruments, musical structure and related arts, and contemporary music. P/NP or letter grading.

C136B. Music of Africa. (4) Lecture, four hours; outside study, eight hours. Introduction to music of various African cultures and regions. Through readings, lectures, viewing of films, and analysis of music, students gain greater understanding of diverse musical traditions found on African continent and become more cognizant of contributions that people of Africa have made to world music. Concurrently scheduled with course C236B. Letter grading.

146. Folk Music of South Asia. (4) Lecture, three hours; laboratory, one hour. Illustrated survey of some regional genres, styles, and musical instruments found in India and Pakistan, with special reference to religious, social, economic, and cultural context of their occurrence. P/NP or letter grading.

147. Survey of Classical Music in India. (4) Lecture, four hours. Examination of melodic, metric, and formal structures of Indian classical music in context of religious, sociocultural, and historical background of country. P/NP or letter grading.

C150. Music and Politics in East Asia. (4) Lecture, four hours. Limited to Ethnomusicology, Music, Music History, World Arts and Cultures, Chinese, Japanese, Korean, and East Asian Studies majors. Political imperatives have long had direct and often explicit impact on music sound and context in East Asia. Examination of interaction of ideology and musical practice in medieval Korea and in contemporary Korea, Japan, Taiwan, and China. Concurrently scheduled with course C250. Letter grading.

C156A-156B. Music in China. (4-4) Letter grading. **C156A.** Lecture, four hours. Requisite: course 20C. Limited to Ethnomusicology majors. Survey of traditional, popular, and Western-influenced musics currently widespread in China, including musical analysis of different genres; examination of contexts in which they exist. Investigation of profound effect of Confucian and Communist ideologies on music. Concurrently scheduled with course C256A. **156B.** Lecture,

three hours; laboratory, two hours. Requisite: course C156A. Introduction to various notational systems. Analysis of representative styles.

157. History of Chinese Opera. (4) Lecture, four hours. Survey of dramatic elements in Chinese operas, incorporating singing, dance, and acrobatics. Emphasis on traditional and modern Peking opera and its relation to Cantonese and other genres. P/NP or letter grading.

158A-158B-158C. Studies in Chinese Instrumental Music. (4-4-4) Lecture, three hours; laboratory, one hour. P/NP or letter grading. **158A.** Study of literature, major sources, paleography, theory, and philosophy of Ch'in, including transcription and analysis. **158B.** Study of literature, major sources, paleography, theory, and philosophy of P'i P'a, including transcription and analysis. **158C.** Comprehensive study of Chinese musical instruments, classification system, specific musical notation, and use in context of Chinese society.

C159. Music on China's Periphery. (4) Lecture, four hours; outside study, eight hours. Designed for undergraduate Ethnomusicology, Music, Music History, and World Arts and Cultures majors. Survey of musics from China's border regions and neighboring countries: technical musical characteristics and important contextual issues related to traditional and modern styles from Mongolia, Uighurs of Xinjiang, Tibet, Tibe-to-Burman peoples, Hmong, and indigenous peoples of Taiwan. Concurrently scheduled with course C259. P/NP or letter grading.

160. Survey of Music in Japan. (4) Lecture, three hours. Survey of main genres of Japanese traditional music, including Gagaku, Buddhist chant, Biwa music, Koto music, Shamisen music, and music used in various theatrical forms. P/NP or letter grading.

161A-161Z. Advanced World Music Performance Organizations. (2 each) Activity, three hours; outside practice, three hours. Limited to Ethnomusicology majors. Advanced study of traditional vocal and instrumental world music. May be repeated for credit without limitation. Letter grading. **161A.** Music and Dance of American Indians; **161B.** Music of Bali; **161C.** Music and Dance of Balkans; **161D.** Music of China; **161E.** Music and Dance of Ghana; **161F.** Music of India; **161G.** Music of Japan; **161H.** Music of Java; **161J.** Music of Korea; **161K.** Music of Mexico; **161L.** Music of Persia; **161M.** Music of Thailand; **161N.** Music of Near East; **161P.** Music of African Americans; **161T.** Jazz Orchestra. Preparation: audition. Advanced rehearsal and performance of jazz big band repertoire in traditional jazz ensemble, Latin jazz ensemble, and contemporary jazz ensemble; **161Z.** Open Ensemble.

162. Advanced Private Instruction in Music. (2) Studio, one hour; outside practice, five hours. Preparation: two years of courses 91A through 91Z or 92. Limited to Ethnomusicology majors. Advanced private or semiprivate music instruction with distinguished community-based musician, that must be arranged by students and approved by course instructor. May be repeated for credit without limitation. Letter grading.

163. Pathways to Composition. (4) Lecture, four hours. Enforced prerequisite: course 11C. Fresh new approaches to composing music for both beginning and experienced composers, while looking at pieces from jazz, classical, and film music repertoire for inspiration and study. Group composition exercises, with improvisation as potent composition tool. Exploration of compositions in myriad of styles to see how different composers develop melodic phrases into musical statements. Observation of how composers create sense of dramatic flow, with composition of student pieces based on these concepts. Study of various composers' use of rhythmic phrases and call and response, and element of surprise to keep student compositions fresh and dynamic. Writing of compositions based on programmatic storylines and specific images by interweaving musical ideas with concepts from visual art, drama, and film. Letter grading.

164. World Music Composition. (4) Lecture, three hours; laboratory, three hours; outside study, six hours. Requisites: courses 11A, 11B, 11C. Limited to

Ethnomusicology majors. Examination in composition using variety of Western and non-Western musical systems. Final project required. Letter grading.

C165. Selected Topics in Composition. (4) Lecture, four hours; outside study, eight hours. Enforced prerequisite: course 11C. Evaluation of important musical concepts and approaches to enable students to develop greater compositional technique and understanding. Ways composers of jazz, European classical, and other musical genres have successfully approached use of extended compositional forms. Examination of way in which world music traditions have interfaced with jazz and other types of music to create new musical languages. Use of concepts, structural paradigms, and inspiration from literature, visual arts, and other sources to develop student compositions. Concurrently scheduled with course C270. Letter grading.

C169. Music, Science, and Technology. (4) Lecture, four hours; laboratory, four hours; outside study, four hours. Designed for Ethnomusicology, Music, and Music History majors. Application of science and technology for both creation and dissemination of music. Introduction to tools and techniques such as CD mastering, digital sampling, recording, and music synthesis, as well as scientific principles underlying such technologies. Concurrently scheduled with course C269. Letter grading.

170. Acoustics. (4) Lecture, four hours; discussion, one hour. Interrelationship of acoustical and musical phenomena. Tuning systems, consonance and dissonance, tone quality. Lecture, demonstration, and discussion; tours of instrumental collections and acoustical research facilities. P/NP or letter grading.

171. Instruction in Advanced Jazz Performance. (2) Laboratory, one hour. Preparation: advanced performance ability as demonstrated by audition. Study of jazz repertoire and techniques for specific instruments and voice. May be repeated for maximum of 12 units. Letter grading.

172A. Cognitive Psychology of Music. (4) Lecture, four hours; discussion, one hour. Designed for nonmajors. Introduction to psychology of music; historical background and broad field of study, including use of music as stimulus, tests and measurements, and related modes of musical behavior. P/NP or letter grading.

174. Aesthetics of Music. (5) Lecture, four hours; discussion, one hour. Designed for nonmajors. Historical survey of musical aesthetic thought and practice. Selected readings and musical examples. P/NP or letter grading.

175. Sociology of Music. (4) Lecture, four hours. Designed for Ethnomusicology, Music History, and Music majors. Introduction to sociology of music, its principles and basic concepts, and its critical significance for sociomusical inquiry, including study of popular music, ethnomusicology, and cultural politics of music. P/NP or letter grading.

C176. Psychology of Film Music. (4) Lecture, four hours; outside study, eight hours. Exploration of music in film, animation, and dance through lens of cognitive psychology, with focus on interpretation of film music relative to model of musical meaning. Concurrently scheduled with course C276. Letter grading.

177. Jazz Combo. (2) Activity, two hours; laboratory, four hours. Small group performance of various styles in ensembles of three to 10 musicians. Minimum of 12 units required for jazz studies concentration students. May be repeated for maximum of 18 units. Letter grading.

C178. Aesthetic and Philosophical Foundations in Systematic Musicology. (4) Seminar, three hours; outside study, nine hours. Limited to Ethnomusicology majors. Comprehensive overview of critical approaches to aesthetics in systematic musicology. Exploration of aesthetics and philosophy of music, sociology of music, critical theory, hermeneutics, and music criticism. Concurrently scheduled with course C204. Letter grading.

C179. Empirical Foundations in Systematic Musicology. (4) Seminar, three hours; outside study, nine hours. Limited to Ethnomusicology majors. Comprehensive overview of empirical approaches in system-

atic musicology. Exploration of theory and philosophy of science and empiricism, experimental semiotics and aesthetics, acoustics, musical learning theory, psychology of music, psycholinguistics, and related disciplines as applied to musical scholarship based on theory and model building. Concurrently scheduled with course C203. Letter grading.

180. Analysis of Traditional Music. (4) Lecture, four hours. Designed for Ethnomusicology, Music History, and Folklore majors. Intensive study of methods and techniques necessary to understand traditional music. P/NP or letter grading.

181. Anthropology of Music. (4) Lecture, four hours. Designed for Ethnomusicology, Music History, and Anthropology majors. Cross-cultural examination of music in context of social behavior and how musical patterns reflect patterns exhibited in other cultural systems, including economic, political, religious, and social structure. P/NP or letter grading.

CM182. Music Industry. (4) (Formerly numbered C182.) (Same as Music CM182 and Music History CM186.) Lecture, four hours; outside study, eight hours. Limited to Ethnomusicology, Music, and Music History majors. Examination of influence of music industry on way music is created, performed, listened to, evaluated, and used today. Historical approach taken, beginning with music published in 18th century and continuing through development of audio recordings to MTV and popular music today. Concurrently scheduled with course CM288. Letter grading.

183. Study of Ethnomusicology. (4) Lecture, three hours; outside study, nine hours. Requisites: courses 10A, 10B, 10C, 20A, 20B, 20C. Designed for Ethnomusicology majors. Introduction to history of field, basic fieldwork and analysis methods, and current issues in research. Letter grading.

C184. Public Ethnomusicology. (4) Lecture, four hours; outside study, eight hours. Designed for Ethnomusicology majors. How music industry functions and how products are created, marketed, and consumed. Techniques of pure research, basic and theoretical in nature, contrasted with those of applied research, practical and policy-oriented in approach. Concurrently scheduled with course C286. Letter grading.

186. Senior Recital or Project. (2) Tutorial, one hour. Limited to seniors. Final project for students who, with approval from their faculty advisers, perform one-hour recital or have their compositions performed in one-hour recital. Organization and arrangement of rehearsal schedule with appropriate accompaniment and preparation of program for performance. Grades are assigned in term recital is performed or composition is completed and performed. P/NP grading.

188. Special Courses in Ethnomusicology. (4) Lecture, four hours; outside study, eight hours. Selected topics in ethnomusicology. Consult *Schedule of Classes* for topics and instructors. May be repeated for credit. P/NP or letter grading.

193. Journal Club Seminars: Ethnomusicology. (2) Seminar, two hours; outside study, four hours. Limited to undergraduate students. Reading and discussion of writings on subjects in ethnomusicology. May be repeated for credit. P/NP grading.

195A. Community or Corporate Internships in Ethnomusicology. (2 to 4) (Formerly numbered 195.) Tutorial, six to 12 hours. Limited to juniors/seniors with minimum cumulative 3.0 grade-point average. Internship in supervised setting in community agency or private business. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for maximum of 8 units. Individual contract with supervising faculty member required. P/NP or letter grading.

195B. Community or Corporate Internships in Public Ethnomusicology. (2 to 4) Tutorial, six to 12 hours. Limited to seniors in public ethnomusicology emphasis. Internship in supervised setting in community agency or business. Students meet on regular basis with instructor and provide weekly reports of their experience. May be repeated for maximum of 8 units. Individual contract with supervising faculty member required. P/NP or letter grading.

196. World Music Teaching Practicum. (4) Seminar, two hours; fieldwork, three hours; outside study, seven hours. Limited to junior/senior Ethnomusicology majors. Integration of academic work and hands-on training. Participation in theoretical discussions of world music education and application of these theories in elementary and secondary music and social studies classrooms. P/NP or letter grading.

197E. Individual Studies in Ethnomusicology. (2 to 4) Tutorial, one hour; outside study, five to 11 hours. Preparation: 3.0 grade-point average. Limited to seniors. Individual intensive study in ethnomusicology, with scheduled meetings to be arranged between faculty member and student. Tangible evidence of mastery of subject matter resulting in final research project required. May be repeated for maximum of 8 units. Individual contract required. P/NP or letter grading.

197S. Individual Studies in Systematic Musicology. (2 to 4) Tutorial, one hour; outside study, five to 11 hours. Preparation: 3.0 grade-point average. Limited to seniors. Individual intensive study in systematic musicology, with scheduled meetings to be arranged between faculty member and student. Tangible evidence of mastery of subject matter resulting in final research project required. May be repeated for maximum of 8 units. Individual contract required. P/NP or letter grading.

199. Directed Research or Senior Project in Ethnomusicology. (2 to 4) Tutorial, to be arranged. Limited to junior/senior Ethnomusicology majors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for maximum of 8 units. Individual contract required. Letter grading.

Graduate Courses

C200. Audiovisual Archiving in 21st Century. (4) Seminar, three hours. Designed for Ethnomusicology majors. Examination of history, present state, and future of audiovisual archives, with specific focus on ethics, copyright, contracts, fieldwork, preservation, and access and issues related to technology, space, budgets, and staffing. Concurrently scheduled with course C100. S/U or letter grading.

201. History of Ethnomusicology. (4) Seminar, three hours; outside study, nine hours. Limited to graduate ethnomusicology students. Basic literature and schools of thought in field of ethnomusicology from late 19th century to 1980s. Letter grading.

202. Current Issues in Ethnomusicology. (4) Seminar, three hours; outside study, nine hours. Limited to graduate ethnomusicology students. Current issues, basic literature, and schools of thought in field of ethnomusicology from 1980s to present. Letter grading.

C203. Empirical Foundations in Systematic Musicology. (4) Seminar, three hours; outside study, nine hours. Limited to Ethnomusicology majors. Comprehensive overview of empirical approaches in systematic musicology. Exploration of theory and philosophy of science and empiricism, experimental semiotics and aesthetics, acoustics, musical learning theory, psychology of music, psycholinguistics, and related disciplines as applied to musical scholarship based on theory and model building. Concurrently scheduled with course C179. Letter grading.

C204. Aesthetic and Philosophical Foundations in Systematic Musicology. (4) Seminar, three hours; outside study, nine hours. Limited to Ethnomusicology majors. Comprehensive overview of critical approaches to aesthetics in systematic musicology. Exploration of aesthetics and philosophy of music, sociology of music, critical theory, hermeneutics, and music criticism. Concurrently scheduled with course C178. Letter grading.

205. Seminar: Information Technology and Research Skills. (4) Seminar, three hours. Limited to graduate ethnomusicology students. Lecture, demonstration, and practice. Basic skills for research on and about music that is essential to student careers as ethnomusicologists, specifically information technology skills, acoustics, and representational tools for nonlinguistic acoustic phenomena. Basic understand-

ing of acoustics, ability to represent sounds in various graphic forms appropriate to them, and ability to locate and organize information sources related to field of ethnomusicology. Letter grading.

206. Integrating Theory with Ethnography. (4) Seminar, three hours. Designed to show how theory and primary research cannot exist without each other, and how various authors have integrated theoretical writings and ideas with their ethnographic or historical data. Reading of several recent ethnographies, mostly about music and possibly historical studies, in tandem with theoretical writings that inform arguments of these books. Letter grading.

207. Seminar: North American Indian Music. (4) Seminar, three hours. Requisite: course 106A or 106B. Survey of representative musical styles of Native North American Indians, including problems of transcription, methods of analysis, symbolic implications of song texts. Emphasis on interrelationship between music and cultural context. Influence of Western music in acculturative contexts. S/U or letter grading.

208. Seminar: Latin American Music. (4) Seminar, three hours. Review of bibliographic, methodological, and philosophical bases of musical research in Latin America, working from both general and specific perspectives. Exploration of research problems and investigations on specific musical cultures and distinct genres of musical expression. S/U or letter grading.

M211. Seminar: African American Music. (4) (Same as Afro-American Studies M211.) Seminar, three hours. Requisites: courses M110A, M110B. Designed for graduate students. In-depth examination of intellectual history of African American music scholarship. Intensive investigation of problems, theories, interdisciplinary methods/schools of research, and bibliography related to study of African American music. Letter grading.

CM212. African American Music in California. (4) (Same as Afro-American Studies CM212A.) Lecture, four hours. Historical and analytical examination of African American music in California, including history, migration patterns, and urbanism to determine their impact on development of African American music in California. Concurrently scheduled with course CM112. S/U or letter grading.

C222A-C222B-C222C. Jazz Styles and Analysis. (4-4-4) Lecture, four hours; outside study, eight hours. Designed for Ethnomusicology, Music, and Musicology majors. In-depth analysis of jazz styles and repertoire intended for students with music backgrounds. Concurrently scheduled with courses C122A-C122B-C122C. Letter grading. **C222A.** Early Jazz to Swing Era; **C222B.** Bebop to Avant-garde; **C222C.** Jazz since Sixties.

C224. Electric Music of Miles Davis. (4) Lecture, four hours; outside study, eight hours. Limited to graduate students. Careful examination of artistic body of Miles Davis' electric music (1967 to 1991). Influences and impetus that fueled his daring move from acoustic jazz to electric music. Examination of Davis' complex and challenging relationship with music industry as his art moved through periods of multidimensional growth and evolutionary development. Much detail to his use of contemporary jazz, funk, rhythm and blues, rock, southern and west African, Brazilian, European avant-garde, Cuban, Indian, flamenco, and ambient music. Concurrently scheduled with course C124. Letter grading.

228. Seminar: Balkan Music. (4) Seminar, three hours. Major issues in study of Balkan music, including song text analysis, music instruments, dance music, rituals and customs, minorities, and ideology. S/U or letter grading.

230. European Musics: Politics, Identities, Nationalisms. (4) Seminar, three hours; outside study, nine hours. Designed for graduate students. European classical, popular, and traditional musics, with particular attention to way in which music mirrors, negotiates, and contests ideas about and practices of national and other forms of identity, ideas developed in other domains of discourse and practice such as philosophy, history, literature, art, and folklore. Examination

of way musicians, ordinary people, and politicians have used music to affect political processes involved in contesting and resolving tensions created between and among these identity formations. Historical period coverage primarily from 19th and 20th centuries, with examples from all over European continent. Letter grading.

233A-233B-233C. European Traditional and Popular Music. (0-0-4) Discussion, one hour. Review of literature on European traditional and popular music, with special attention to modern issues and processes. May be repeated for credit. In Progress (233A, 233B) and letter (233C) grading.

C236B. Music of Africa. (4) Lecture, four hours; outside study, eight hours. Introduction to music of various African cultures and regions. Through readings, lectures, viewing of films, and analysis of music, students gain greater understanding of diverse musical traditions found on African continent and become more cognizant of contributions that people of Africa have made to world music. Concurrently scheduled with course C136B. Letter grading.

237. Seminar: African Music. (4) Seminar, three hours. Requisite: course 136A or C136B. Intensive investigation of musical style; historical, social, and cultural aspects of indigenous musical traditions and related art forms. S/U or letter grading.

240. Music of Arabic-Speaking Near East. (4) Lecture, three hours. Requisite: course 282 or course in ear training, analysis, and theory. Investigation of historical and cultural backgrounds, main musical styles, relationship between theory and practice and emphasis on mode and improvisation, and 20th-century trends. Concurrent participation in Near East performance ensemble (course 91N) required. S/U or letter grading.

241. Music of Iran and Other Non-Arabic-Speaking Communities. (4) Lecture, three hours. Requisite: course 282 or course in ear training, analysis, and theory. Comparative study of music of Iran and other related areas, including Turkey, with particular reference to their historical and cultural background, sources on music theory and aesthetics, instruments, style, technique of improvisation, and contemporary practice. Concurrent participation in Near East performance ensemble (course 91N) required. S/U or letter grading.

248. Classical Music of India. (4) Lecture, three hours; outside study, nine hours. Requisite: course 146 or 147. Study of history, theory, and practice of north and south Indian classical music. Emphasis on music history and traditional theory and analysis of present-day forms, styles, techniques, and musical instruments. Concurrent participation in Indian performance group (course 91F) required. S/U or letter grading.

C250. Music and Politics in East Asia. (4) Lecture, four hours. Designed for graduate students. Political imperatives have long had direct and often explicit impact on music sound and context in East Asia. Examination of interaction of ideology and musical practice in medieval Korea and in contemporary Korea, Japan, Taiwan, and China. Concurrently scheduled with course C150. Letter grading.

251. Music of Indonesia. (4) Lecture, three hours; outside study, nine hours. Requisite: course 20C. Emphasis on music and related performing arts of Java, Bali, and other Indonesian islands. Concurrent participation in one Indonesian performance group (course 91B or 91H) required. S/U or letter grading.

252. Seminar: Music of Mainland Southeast Asia. (4) Seminar, three hours. Requisite: course 20C. Presentation of materials concerning musical performance traditions of Laos, Cambodia, Vietnam, Thailand, and Burma, both in mainland Southeast Asia and in American context, with perspectives from archaeology, history, performance theory, applied anthropology, and ethnomusicology. S/U or letter grading.

C256A. Music in China. (4) Lecture, four hours. Requisite: course 20C. Limited to Ethnomusicology majors. Survey of traditional, popular, and Western-influenced musics currently widespread in China, including musical analysis of different genres; examination of contexts in which they exist. Investigation of

profound effect of Confucian and Communist ideologies on music. Concurrently scheduled with course C156A. Letter grading.

C259. Music on China's Periphery. (4) Lecture, four hours; outside study, eight hours. Designed for graduate Ethnomusicology, Music, Musicology, and World Arts and Cultures majors. Survey of musics from China's border regions and neighboring countries: technical musical characteristics and important contextual issues related to traditional and modern styles from Mongolia, Uighurs of Xinjiang, Tibet, Tibeto-Burman peoples, Hmong, and indigenous peoples of Taiwan. Concurrently scheduled with course C159. S/U or letter grading.

M261. Gender and Music in Cross-Cultural Perspective. (4) (Same as Women's Studies M261.) Seminar, three hours. Designed to foster in-depth understanding of gender in study of music as culture. Topics range from ethnography of gender and sexuality, (de)codification of messages of resistance, and gender representation to gendered politics via musical production. S/U or letter grading.

262. Musical Ethnography. (4) Seminar, three hours; outside study, nine hours. Examination of selected book-length ethnographies, most published in last 10 years, as both literary genre and research procedure. S/U or letter grading.

263. Perspectives in Popular Music Research. (4) Seminar, three hours. Investigation of theoretical paradigms, issues, and research models of popular music, with emphasis on world music genres, local/global markets, mass mediation, appropriation and aesthetics of style, ethnographic methods, and impact of popular music studies on ethnomusicology. Letter grading.

264. Urbanism and Music. (4) Seminar, three hours; outside study, nine hours. Theoretical and methodological issues in study of city as cultural entity that affects and is affected by music making. S/U or letter grading.

265. Religion and Music. (4) Seminar, three hours; outside study, nine hours. Cross-cultural examination of role of musical expression as spiritual medium and as artistic expression in world's religions. S/U or letter grading.

266. Charles Seeger's Life and Thought. (4) Seminar, three hours; outside study, nine hours. Charles Seeger's (1886 to 1979) major writings and influence on three fields he helped to found (ethnomusicology, systematic musicology, historical musicology), as well as his interest in applied musicology and American composition in 20th century. S/U or letter grading.

267. Music and Ecstasy. (4) Seminar, three hours; outside study, nine hours. Relationship between music and consciousness in different world cultures and role music plays in ecstatic experiences. Phenomena include trance, spirit possession, shamanism, religious ecstasy, mysticism, and artistic inspiration. S/U or letter grading.

268. Modernity and Musical Experience. (4) Seminar, three hours; outside study, 10 hours. Limited to graduate students. Examination of possibilities for subject-centered musical ethnography to account for fragmented musical experience in modern world. Consideration of local and world musics in relation to modernity, postmodernity, globality, notions of self and subject, power, and media images. Letter grading.

C269. Music, Science, and Technology. (4) Lecture, four hours; laboratory, four hours; outside study, four hours. Designed for Ethnomusicology, Music, and Musicology majors. Application of science and technology for both creation and dissemination of music. Introduction to tools and techniques such as CD mastering, digital sampling, recording, and music synthesis, as well as scientific principles underlying such technologies. Concurrently scheduled with course C169. Letter grading.

C270. Selected Topics in Composition. (4) Lecture, four hours; outside study, eight hours. Limited to graduate students. Evaluation of important musical concepts and approaches to enable students to develop greater compositional technique and understanding. Ways composers of jazz, European classical, and

other musical genres have successfully approached use of extended compositional forms. Examination of way in which world music traditions have interfaced with jazz and other types of music to create new musical languages. Use of concepts, structural paradigms, and inspiration from literature, visual arts, and other sources to develop student compositions. Concurrently scheduled with course C165. Letter grading.

271. Seminar: Acoustics of Music. (6) Seminar, three hours. Requisite: course 170. Selected topics in acoustics, including laboratory methodologies and practical applications. Topics include Western and non-Western instruments, tuning systems, psychoacoustics, and methods of spectral analysis. May be repeated once for credit. S/U or letter grading.

273. Seminar: Psychology of Music. (6) Seminar, three hours. Selected topics in psychology of music, including recent findings in brain research, musical perception, learning, cognition, memory, therapy, affect, meaning, and measurement. May be repeated once for credit. S/U or letter grading.

275. Seminar: Aesthetics of Music. (6) Seminar, three hours. Specific topics in Western and non-Western aesthetic thought, including value, meaning (semiotics), historical development of theoretical perspectives and critical theory, and interpretation. May be repeated once for credit. S/U or letter grading.

C276. Psychology of Film Music. (4) Lecture, four hours; outside study, eight hours. Exploration of music in film, animation, and dance through lens of cognitive psychology, with focus on interpretation of film music relative to model of musical meaning. Concurrently scheduled with course C176. Letter grading.

279. Seminar: Systematic Musicology. (4) Seminar, three hours. Requisite: course 170. Exploration of specific topics in general field of systematic musicology covering disciplines such as anthropology, acoustics, aesthetics, music perception, philosophy, organology, sociology, and experimental approaches. May be repeated for credit. S/U or letter grading.

280. Teaching World Music and Music Appreciation. (4) Seminar, three hours. Preparation: two ethnomusicology courses or concurrent enrollment in course 20A, 20B, or 20C. Designed for ethnomusicology and musicology graduate students. Practical overview of current pedagogical philosophies and texts used in teaching introductory music survey courses, specifically music appreciation and general world music. Letter grading.

281A-281B. Seminars: Field and Laboratory Methods in Ethnomusicology. (6-6) Seminar, three hours; laboratory, two hours. Requisites: courses 201, 202. Fieldwork concepts and methods using technical equipment, conducting interviews, dealing with ethical issues, and designing research projects. S/U or letter grading.

282. Seminar: Analysis. (6) Seminar, three hours. Requisite: course 180. Designed for graduate ethnomusicology students. Intensive discussion of techniques used in ethnomusicological analysis, including transcription and notation, with emphasis on analysis of musical performance and music events. S/U or letter grading.

283. Seminar: Study of Musical Instruments (Organology). (6) Seminar, three hours. Requisites: courses 201, 202. Musical instruments studied in terms of their structures, performance contexts, cultural significance, and patterns of change. S/U or letter grading.

284. Seminar: Anthropology of Music. (4) Seminar, three hours. Requisites: courses 201, 202. Analysis of current anthropological paradigms and issues that have major impact on ethnomusicology. S/U or letter grading.

285. Seminar: Comparative Music Theory. (6) Seminar, three hours. Comparative study of codified music theories of select cultures—Western and non-Western—considered in themselves and as expressions of their societies. Theory considered as science of music; its place between cultural values and artistic practice in different civilizations. S/U or letter grading.

C286. Public Ethnomusicology. (4) Lecture, four hours; outside study, eight hours. Designed for Ethnomusicology majors. How music industry functions and how products are created, marketed, and consumed. Techniques of pure research, basic and theoretical in nature, contrasted with those of applied research, practical and policy-oriented in approach. Concurrently scheduled with course C184. Letter grading.

287. Seminar: Folk Music. (4) Seminar, three hours. S/U or letter grading.

CM288. Music Industry. (4) (Formerly numbered C288.) (Same as Music CM282 and Musicology CM288.) Lecture, four hours; outside study, eight hours. Limited to Ethnomusicology, Music, and Musicology majors. Examination of influence of music industry on way music is created, performed, listened to, evaluated, and used today. Historical approach taken, beginning with music published in 18th century and continuing through development of audio recordings to MTV and popular music today. Concurrently scheduled with course CM182. Letter grading.

289. Research Design and Grant Writing in Ethnomusicology. (4) Seminar, three hours; outside study, nine hours. Design of dissertation research proposal, locating and applying for dissertation fieldwork grants, organizing and presenting advanced academic proposals with sophisticated methods and professional writing skills. S/U or letter grading.

290. Seminar: Ethnomusicology. (6) Seminar, three hours. Prerequisites: courses 20A, 20B, 20C, 200, 201, 202. May be repeated for credit. S/U or letter grading.

291. Ethnomusicology Colloquium Series. (1) Research group meeting, one hour. Limited to graduate ethnomusicology students. Introduction to new trends and issues in discipline of ethnomusicology in effort to strengthen and stimulate intellectual community within department. Topics vary from term to term and consist of presentations by guest lecturers, faculty members, and students. May be repeated for credit. S/U grading.

292A-292Z. Seminars: Special Topics in Ethnomusicology. (4 each) Seminar, four hours. Designed for graduate students. Utilization of special interests and expertise of regular and visiting faculty; topics of current interest presently offered in ethnomusicology program. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495A. Teaching Apprentice Practicum. (2) Eight weekly two-hour seminar sessions, plus intensive training session during Fall Quarter registration week. Preparation: appointment as teaching apprentice in Ethnomusicology Department. Required of all new teaching apprentices. Special course dealing with problems and practices of teaching ethnomusicology and systematic musicology at college level. May not be applied toward degree requirements. S/U grading.

495B. Teaching with Technology. (2) Seminar, three hours; outside study, three hours. Limited to graduate ethnomusicology students. Training in presentation, spreadsheet, web design, and digitization software, and its application in classroom and in preparation of electronic teaching portfolio. S/U grading.

596. Directed Individual Studies. (2, 4, or 6) Tutorial, to be arranged. Only 4 units may be applied toward M.A. minimum course requirements. S/U or letter grading.

597. Preparation for Master's Comprehensive Examination or Ph.D. Qualifying Examinations. (2 or 4) Tutorial, to be arranged. May be repeated for credit. S/U grading.

598. Guidance of M.A. Thesis. (4, 8, or 12) Tutorial, to be arranged. May be repeated for credit. S/U grading.

599. Guidance of Ph.D. Dissertation. (4, 8, or 12) Tutorial, to be arranged. May be repeated for credit. S/U grading.

EUROPEAN STUDIES

*Interdepartmental Program
College of Letters and Science*

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Ivan T. Berend, Ph.D., *Chair*

Faculty Administrative Committee

Ivan T. Berend, Ph.D. (*History*)
J. Arch Getty, Ph.D. (*History*)
Françoise Lionnet, Ph.D. (*Comparative Literature,
French and Francophone Studies*)
Mitchell B. Morris, Ph.D. (*Musicology*)
Michael E. Shin, Ph.D. (*Geography*)

Scope and Objectives

The European Studies major equips students to appreciate the richness of European cultures, societies, and languages that are fundamental to the understanding of modern Europe. The strongly pan-European program provides the opportunity to study this region from the vantage points of several disciplines in the humanities and social sciences.

The major aims to break down the traditional distinctions between the eastern and western blocs in light of important internal and global transformations and the rise of the European Union pertaining to cultural, economic, political, and social structures that are happening in Europe today.

Undergraduate Study

The European Studies major is a designated capstone major. Students complete either a variable topics seminar or directed research in European studies. Through their capstone work, students engage in in-depth analysis of selected topics in European studies, demonstrate a critical understanding of issues relevant to modern Europe, perform scholarly research and presentations on selected topics, and engage with other students in a seminar setting.

European Studies B.A.

Capstone Major

The B.A. degree in European Studies is based on four principles: (1) students acquire proficiency in a modern European language other than English, (2) students examine European societies and civilization in depth from a pan-European and regional perspective, in addition to the traditional national focus that language instruction typically provides, (3) they do so from an interdisciplinary point of view, taking

courses in at least five different academic departments/programs, and (4) they take lower division courses to acquire a broad introduction to European heritage and upper division courses to study modern Europe in greater detail from the 19th century on.

Preparation for the Major

The preparation for the major consists of 24 to 30 units of foreign language, 8 units of humanities and arts courses, and 16 units of social sciences courses as follows:

Foreign Language (24 to 30 units): Students prepare for the major by studying one modern European language other than English—the declared foreign language—through the intermediate level. Students must fulfill the specific requirements of their selected language department. The relevant language departments are French and Francophone Studies (French), Germanic Languages (Dutch, German, and Yiddish), Italian, Scandinavian Section (Danish, Finnish, Norwegian, and Swedish), Slavic Languages and Literatures (Czech, Hungarian, Lithuanian, Polish, Romanian, Russian, Serbian/Croatian, and Ukrainian), and Spanish and Portuguese.

In most cases, courses 1, 2, 3, 4, 5, 6, or the equivalent fulfill the requirement. The total number of units may vary according to the selected language. Students should complete the lower division foreign language requirement by the end of their sophomore year. If students wish to study a modern European language not taught in full by any UCLA department, they should consult with the academic counselor about how to fulfill the language requirement.

Humanities and Arts (8 units): (1) One course in literature or civilization taught in a language department to be selected from Dutch 10, English 90, French 12, 14, 14W, 41, 60, German 50A, 50B, 56, 58, 59, 60W, 61A through 61D, 62W, Italian 42A, 42B, 46, 50A, 50B, Portuguese M35, M42, Romanian 90, Russian 25, 25W, 30, 90A, 90B, 90BW, Scandinavian 40, 50, 50W, Slavic 88, 90, Spanish M35, M42, 60A, 60C, 61A, 62A, or Yiddish 121A; (2) one course from Art History 54, Classics 10, 20, 30, 42, 51A, 51B, Comparative Literature 1A, 1B, 1C, Music History 3, 66, 68, Philosophy 1, 5, 6, or 8.

Social Sciences (16 units): (1) Two courses from two different departments selected from Economics 1, 2, 5, Geography 4, Information Studies 10, 20, Political Science 10, 20, 50, Sociology 1, 10, Statistics 10, 12; (2) two courses from one of the following series: History 1A, 1B, and 1C, or 2B, 2C, and 2D, or 3A, 3B, and 3C. Variable topics courses such as History 97C may also be applied toward the history requirement after consultation with the academic counselor.

To enter the major, students must have completed all preparation for the major requirements with an overall grade-point average of 2.5 or better. After satisfying the preparation requirements, students may declare the major in consultation with the academic counselor.

Transfer Students

Transfer applicants to the European Studies major with 90 or more units should complete as many of the following introductory courses as possible prior to admission to UCLA: two years of a modern European foreign language other than English, one language department course in European literature or civilization or one course in a European country's literature or civilization, one course in a humanities and arts department with focus on Europe, two courses from two different social sciences departments that must have a distinct methodological or European content, and two European history courses.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

The major consists of European Studies 101 and 11 additional upper division courses with substantial modern European content in at least five different departments/programs, with no more than four courses in any one department/program, as follows:

Humanities and Arts (16 units): (1) One course taught in a modern European language other than English, with instruction and reading assignments in that language, to be selected from Dutch 131, French 109, 114A through 120, German 115, 116, 154, 160 through 166, 169 through 174, Italian 103A, 103B, 103C, 113 through 120, Portuguese 120A, 120B, C124, C126 through C129, Russian 108, 130A, 130B, 130C, 140A through 140D, 150, Spanish 119A through 120A, 122 through 133, Yiddish 131A, or 131B; (2) two courses with a pan-European or regional focus from Art History 110C, M110D, Philosophy 118, Scandinavian C141A, CM144A, C145A, C145B, C146A, 147A, C147B, 155, 156, 161 (one course from the list of courses in item 1 may be applied); (3) one course with either a pan-European or regional focus from item 2 or a national focus selected from Art History 110A, 110B, Dutch 113, English 115B, French 137, German 102, 103, 104, Italian 110, M158, Polish 152B, Russian 120 through 128, Scandinavian 157, or Spanish 151A.

Social Sciences (16 units): (1) One modern European history course from History 120A through 120D, 121D, 121E, 121F, 122F, 123B, 123C, 131A, 134B, 134C, or 135C; (2) two courses with a pan-European or regional focus from Economics 181B, Geography 152, 183, Political Science 111C, 127A, 153A, 153B, 156B, Sociology M166 (one course from the list of courses in item 1 may be applied); (3) one course with either a pan-European or regional focus from item 1 or 2 or a national focus selected from History 124C, 125C, 125D, 127C, 127D, 128B, Political Science 128B, 152A, 152B, 152C, 156A.

Electives (12 units): One course from any approved humanities course list, one course from any approved social sciences course list, and a

capstone research seminar or capstone directed research (European Studies 191 or 199) under the supervision of a faculty member, or a 195 internship course related to Europe.

Variable topics courses such as History 191C may be applied toward any of the above course requirements when they are relevant for the course category under which they are petitioned.

Study in Europe

The program strongly recommends that students spend at least one term studying in the European country most relevant to their work. Participation in the University of California Education Abroad Program or other study abroad programs is strongly encouraged. Students should consult with their academic adviser about how to optimize the choices of courses offered by the host university.

Double Majors

Through judicious use of electives, students may find it possible to obtain the B.A. degree with two majors (e.g., European Studies and History, European Studies and Spanish). Interested students should consult the undergraduate academic advisers of both departments involved as early as possible in their B.A. program.

European Studies Minor

Through an interdisciplinary curriculum, the European Studies minor offers students a modern and pan-European understanding of the region. It breaks down the traditional distinctions between the eastern and western blocs in the light of important internal and global transformations that are happening in Europe today.

To enter the minor, students must be in good academic standing (minimum 2.0 grade-point average) and have completed all lower division minor courses with a minimum overall GPA of 2.0.

Required Lower Division Courses (8 units): One humanities course on European literature or civilization selected from Comparative Literature 2CW, 4CW, Dutch 10, English 90, French 12, 14, 14W, 41, 60, German 50B, 56, 58, 59, 61A, Italian 42A, 46, 50A, 50B, Portuguese M35, M42, Romanian 90, Russian 25, 25W, 30, 90A, 90B, 90BW, Scandinavian 40, 50, 50W, Slavic 90, Spanish M35, or M42 and one social sciences course selected from History 1A, 1B, 1C, 2B, 2C, 2D, 3A, 3B, or 3C. Students must have a minimum overall 2.0 grade-point average.

Required Upper Division Courses (20 units): European Studies 101, 191; one humanities course with a pan-European focus selected from Art History 110C, M110D, Central and East European Studies 126, Comparative Literature C164, Ethnomusicology 133, Film and Television 106B, Scandinavian C141A, C145A, C145B, C146A, 147A, C147B, 155, 156, 161, C180, Slavic 126; one social sciences course with a pan-European focus selected from Geography 152, History 120A, 120B, 121D, 121E, 121F, 122F, 123C, 131A, 134B, 134C, 135C, M182D, Political Science 111C, 127A, 153A;

one additional course from either the humanities or social sciences list above.

No more than two upper division courses (8 to 10 units) may be applied toward both this minor and students' majors. A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major or minor requirements in another department or program.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

European Studies

Upper Division Courses

101. Introduction to European Studies. (4) Seminar, three hours. Designed for European Studies majors. Interdisciplinary seminar that introduces students to central topics, themes, and concepts of European studies, including the individual and the state, cultural life, economic relations, nationalism, and international relations. Letter grading.

191. Variable Topics Research Seminars: European Studies. (4) Seminar, three hours. Research seminar on selected topics in European studies. Reading, discussion, and development of culminating paper. May be repeated for credit with topic change. Letter grading.

199. Directed Research in European Studies. (4) Tutorial, to be arranged. Limited to senior European Studies majors. Supervised individual research under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. Letter grading.

FAMILY MEDICINE

David Geffen School of Medicine

UCLA
50-071 Center for the Health Sciences
Box 951683
Los Angeles, CA 90095-1683

(310) 825-8234
fax: (310) 267-2529
<http://fm.mednet.ucla.edu>

Chairs

Patrick T. Dowling, M.D., M.P.H. (*Kaiser Permanent Endowed Professor of Community Medicine*), *Chair*
Michelle Anne Bholat, M.D., M.P.H., *Vice Chair, Clinical Affairs*

Directors

Daniel Castro, M.D., *Harbor-UCLA*
Gregory Dalquist, M.D., *Pomona Valley*
Pamela Davis, M.D., *Northridge Hospital*
Thomas Dunlop, M.D., *Ventura County*
James H. Hara, M.D., *Kaiser-Sunset*
Asma Jafri, M.D., *Riverside County*
Theodore O'Connell, M.D., *Kaiser-Woodland Hills*
Denise K.C. Sur, M.D., *UCLA*

Scope and Objectives

The Department of Family Medicine seeks to provide all students with a basic introduction to family-centered care in both the inpatient and ambulatory settings. During the basic clerkship, students develop (1) an appreciation of the breadth and scope of family medicine, (2) a basic knowledge in the broad content areas of

family medicine, and (3) fundamental clinical skills appropriate to family medicine. The overall goal is to provide students with the opportunity to gain an understanding and appreciation of the central role of the primary care physician in the healthcare system, and to offer advanced clinical training for those students interested in pursuing careers in family medicine. Further, the basic curriculum includes an overview of healthcare issues facing underserved and immigrant populations in urban America, as well as an introduction to health services research in family medicine.

Family medicine faculty members are active both in leadership roles in the doctoring curriculum and in the Primary Care College. All first-year students are assigned to work with a family medicine preceptor once a month on a longitudinal basis for the entire year as part of the doctoring program. In the third and fourth (clinical) years, required and elective opportunities exist. All students take a required four-week clerkship in the third year, which is offered at over 10 teaching sites.

For further details on the Department of Family Medicine, see <http://fm.mednet.ucla.edu>.

Family Medicine

Upper Division Course

199. Directed Research in Family Medicine. (2 to 8) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

FILM, TELEVISION, AND DIGITAL MEDIA

School of Theater, Film, and Television

UCLA
103 East Melnitz Building
Box 951622
Los Angeles, CA 90095-1622

(310) 825-5761
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e-mail: info@tft.ucla.edu
<http://www.tft.ucla.edu/programs/ftvdm>

Barbara Boyle, J.D., *Chair*

Professors

Janet L. Bergstrom, Ph.D.
Barbara Boyle, J.D.
Nicholas K. Browne, Ed.D.
John T. Caldwell, Ph.D.
Gilbert Cates, M.A.
Thomas F. Denove, B.A.
Gyula Gazdag, M.F.A.
Marina Goldovskaya, Ph.D.
A.P. Gonzalez, M.A.
Deborah Nadoolman Landis, Ph.D. (*David C. Copley Professor for Study of Costume Design*)
Stephen D. Mamber, Ph.D.
William McDonald, M.F.A.
Kathleen A. McHugh, Ph.D.
Celia L. Mercer, M.F.A.
Chon A. Noriega, Ph.D.
Nancy Richardson, M.F.A.

Robert Rosen, M.A.,
Delia N. Salvi, Ph.D.
Teri E. Schwartz, Ph.D., *Dean*
Charles E. Sheetz, B.A.
Becky J. Smith, M.A.
Richard Walter, M.A.

Professors Emeriti

William B. Adams, M.A.
Jerzy Antczak, M.A.
William Froug, B.J.
Richard C. Hawkins, M.A.
Lewis R. Hunter, M.A.
Walter K. Kingson, Ed.D.
Barbara Marks
Mark McCarty, M.A.
Dan F. McLaughlin, B.A.
William H. Menger, M.A.
Darrell E. Ross, M.F.A.
Ruth E. Schwartz, Ph.D.
Vivian Sobchack, Ph.D.
Robert Trachinger
Peter Wollen, B.A.
John W. Young, M.A.

Associate Professors

Denise R. Mann, Ph.D.
Howard Suber, Ph.D.
C. Fabian Wagmister, M.F.A.

Assistant Professors

Allyson N. Field, Ph.D.
Steven Ricci, M.A., Ph.D.

Lecturers S.O.E.

John D. Boehm, M.A.
Harold L. Ackerman, M.A.

Lecturers

Bill J. Barminski
Vincent M. Brook
Scott M. Brownlee
Jeffrey A. Burke
Paul Castro
Cheryl Dunye
Richard Edwards, M.F.A.
Rhonda Hammer, Ph.D.
Benjamin U. Harris, M.F.A.
Felicia D. Henderson, M.A.
Rory M. Kelly, M.F.A.
Lisa D. Kernan
Rob J. King
Jonathan A. Kuntz, Ph.D.
Eric Marin, M.A.
Fred A. Rubin, B.F.A.
Maria A. San Filippo, Ph.D.
Belinda S. Starkie, M.F.A.
Linda Voorhees
Douglas A. Ward
Kris T. Young, M.F.A.

Adjunct Professors

Jan-Christopher Horak, Ph.D.
Myrl A. Schreiber, M.F.A.

Adjunct Assistant Professors

Dee Caruso, M.A.
Edward J. Monaghan, M.F.A.
John Simmons, M.F.A.

Visiting Professors

Peter Guber, LL.M.
Cecelia Hall

Visiting Assistant Professors

Tim T. Albaugh
Beth Babyak
Neema Barnette
Jeffrey Bell
David M. Blackman
Joshua Brand
Reginald Brown
Norman L. Buckley
Paul S. Chitlik
Curtiss Clayton
Michael Colleary
Robert Cooper

Duane Dell'Amico
Jayson Dinsmore
Channing Dungey
Steve Fayne
Alan Friel
Michael H. Friend
Tom Garvin
George Gary
Sacha Gervasi
Tim Good
Bonnie Greenberg
John Hegeman
David Hoberman
Laura A. Karpman, D.M.A.
Scott A. Kosar (*Lea and Pamela Hunter/Jonathan and Janice Zakin Professor of Screenwriting*)
Rick Mills
Jackie F. Morie
Maggie Murphy
Paul Nagle
Tom Nunan
Deland Nuse
Lynn Okimura
Barry Primus
Daniel J. Pyne, M.F.A.
Arnold Rifkin
Keith F. Rouse
Tom Sherak
Tom R. Sito
Charles Solomon
Kenneth Suddleson
Lawrence B. Tuch
Glenn V. Vilppu
Todd Williams
David Worth

Scope and Objectives

The purpose of the Film, Television, and Digital Media Department is to develop in its students a scholarly, creative, and professional approach to film, television, and digital art forms. The aim of the department is to train graduates who will eventually make original contributions in their chosen field.

The department offers an undergraduate minor in Film, Television, and Digital Media, an undergraduate program leading to the Bachelor of Arts in Film and Television, and graduate programs leading to the Master of Arts, Master of Fine Arts, and Ph.D. degrees in Film and Television.

For current or specific information about the programs and faculty members, see <http://www.tft.ucla.edu/programs/ftvdm>.

Undergraduate Study

The Film and Television major is a designated capstone major. Undergraduate students are required to complete one departmentally sponsored internship course as well as coursework related to the senior thesis concentration area. All courses, including capstone senior thesis projects, involve work shopping individual projects. Group participation in the creation and production of each student's project is core to the curriculum. Specific student learning objectives vary based on concentration area.

Film and Television B.A.

Capstone Major

The undergraduate Film and Television major encourages development of a personal vision that incorporates creative, practical, intellectual, and aesthetic values. Within the context of

a liberal arts education, the program provides a broad background in the field and in the diversity of film and television practice, including courses in history and theory, critical thinking, animation, screenwriting, and the fundamentals of film, video, and television production.

Students are admitted for Fall Quarter only. Admission is highly competitive, and only a limited number of students can be accepted each year. Prior to entry, students are expected to complete at least 90 quarter units (60 semester units) with a 3.0 grade-point average or better and the general education requirements of the School of Theater, Film, and Television. Applicants are also required to submit two letters of recommendation and a portfolio of original written work consisting of (1) a personal essay, (2) a critical essay on a film or major television program, and (3) a creative writing sample. For more specific information on admission requirements, see <http://www.tft.ucla.edu/programs/ftvdm>.

Due to curriculum changes, students in the Theater major are no longer allowed to change their major to Film and Television at the end of their sophomore year.

Preparation for the Major

Required: Film and Television 106A, 106B or 106C, 110A, and one theater course (history, literature, or production).

The Major

Required: Film and Television 100, 115, 130B, 150, 154, 155, 163, 185; one cinema and media studies elective (not previously taken as preparation for the major) from 106B, 106C, 107, 108, 112, 113, 114, M117; one course from 130A or 130C; one capstone departmentally sponsored internship (course 195) and one capstone senior thesis project (course 199); and a senior concentration (at least 20 units) from one of the following areas: (1) *film production*—courses 175A, 175B, 178, (2) *television and video production/narrative*—courses 165, 176A, 176B, (3) *television and video production/documentary*—courses 176A, 176B, 186, (4) *screenwriting*—courses 135A, 135B, 135C, (4) *animation*—courses 181A, 181B, 181C, (5) *cinema and media studies*—courses 106A, 106B, 106C, 107, 108, 110C, 112, 113, 114, M117.

Students should be mindful of the exigencies inherent in filmmaking and be prepared to meet the additional demands of time and costs.

Students are required to perform assignments on each other's projects. In addition, the department reserves the right to hold for its own purposes examples of any work done in classes and to retain for distribution such examples as may be selected.

Consult the *Schedule of Classes* for courses limited to majors only.

Film, Television, and Digital Media Minor

The Film, Television, and Digital Media minor is designed for students who wish to augment their major program of study with a series of courses that promote the study of film, television, and digital media as art forms with social, political, cultural, and economic significance. The minor consists of a selection of upper division courses that introduce students to the practice and critical study of film, television, and digital media.

To enter the minor students must have declared a major in a department other than the Film, Television, and Digital Media Department, be in good academic standing (minimum 2.0 grade-point average), have completed at least two film and television courses with grades of C or better, and file a petition at the Student Services Office, 103 East Melnitz Building, (310) 206-8441. All degree requirements, including the specific requirements for this minor, must be fulfilled within the unit maximum set forth by each student's school or College.

Required Upper Division Courses (28 to 32 units): (1) One film and media history course from Film and Television 106B, 106C, 110A, (2) one film and media aesthetics course from M50, 113, 114, 116, 188J, (3) one film, media, and society course from 108, M111, 112, M117, (4) two film and media practice courses from 130C, 140, 181A, 184, 186, 188B, 188D, 188E, 188K, 188M, and (5) two film and media studies elective courses from M50, 106B, 106C, 108, 110A, M111, 112, 113, 114, 116, M117, 130A, 130C, 140, 181A, 181B, 181C, 184, 186, 188B, 188D, 188E, 188F, 188J, 188K, 188M. Courses taken under items 1 through 4 may not also be applied toward item 5.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major or minor requirements in another department or program. All units applied toward the minor must be taken in residence at UCLA. Film and television courses taken at other institutions cannot be applied toward the minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Film, Television, and Digital Media offers Master of Arts (M.A.), Master of Fine Arts (M.F.A.), Candidate in Philosophy

(C.Phil.), and Doctor of Philosophy (Ph.D.) degrees in Film and Television.

Film and Television

Lower Division Courses

M50. Introduction to Visual Culture. (5) (Same as English M50.) Lecture, three hours; discussion, one hour; laboratory, two hours. Enforced prerequisite: satisfaction of Entry-Level Writing requirement. Study of how visual media, including advertising, still and moving images, and narrative films, influence contemporary aesthetics, politics, and knowledge. P/NP or letter grading.

72. Production Practice in Film, Television, and Digital Media. (2 to 4) Lecture, three hours; laboratory, three hours. Exploration of research, analysis, and conceptualization of dramatic narrative and laboratory experience in one or more various aspects of contemporary production and postproduction practices for entertainment media, including theater, film, video, and digital media. May be repeated for maximum of 8 units. Letter grading.

Upper Division Courses

100. Undergraduate Symposium. (1 or 2) Laboratory, three hours. Limited to Film and Television majors. Structured forum in which undergraduate majors meet on a regular basis to discuss curricular issues, meet with faculty, and have exposure to an array of guest speakers from within the film industry. May be repeated for a maximum of 4 units. Letter grading.

101. Story and Style: Theory and Practices of Filmmaking. (5) Lecture, three hours; screenings, three hours. Systematic analysis of how filmmakers use sound and image to tell stories on screen. Viewing of selected films as case studies to understand relationship of theory to practice and to develop skills in critical thinking, analytical writing, and strategies for creating original film and video productions. P/NP or letter grading.

106A. History of American Motion Picture. (6) Lecture/screenings, eight hours; discussion, one hour. Historical and critical survey, with examples, of American motion picture both as developing art form and as medium of mass communication. May be repeated once for credit with consent of department and topic change. Letter grading.

106B. History of European Motion Picture. (6) Lecture/screenings, eight hours; discussion, one hour. Historical and critical survey, with examples, of European motion picture both as developing art form and as medium of mass communication. May be repeated once for credit with consent of department and topic change. Letter grading.

106C. History of African, Asian, and Latin American Film. (6) Lecture/screenings, eight hours; discussion, one hour. Critical, historical, aesthetic, and social study—together with exploration of ethnic significance—of Asian, African, Latin American, and Mexican films. Letter grading.

107. Experimental Film. (6) Lecture/screenings, eight hours; discussion, one hour. Study and analysis of unconventional developments in the motion picture.

108. History of Documentary Film. (6) Lecture/screenings, eight hours; discussion, one hour. Philosophy of documentary approach in the motion picture. Development of critical standards and examination of techniques of teaching and persuasion used in selected documentary, educational, and propaganda films. Letter grading.

110A. American Television History. (5) Lecture/screenings, five hours; discussion, one hour. Critical survey of American television history from its inception to present. Examination of interrelationships between program forms, industrial paradigms, social trends, and culture. Starting with television's hybrid origins in radio, theater, and film, contextualization, viewing, and discussion of key television shows, as well as Hollywood films that comment on radio and

television. Consideration of television programs and series in terms of sociocultural issues (consumerism, lifestyle, gender, race, national identity) and industrial practice (programming, policy, regulation, business). Letter grading.

110C. World Media Systems. (4) Lecture/viewing, four hours; discussion, one hour. Prerequisite: course 110A. Designed for juniors/seniors. Global analysis of internal and external broadcasting services, with emphasis on their motives, origins, technologies, and programming. Special attention to political, economic, and regulatory constraints and common world media issues.

M111. Women and Film. (6) (Same as Women's Studies M111.) Lecture, eight hours; discussion, one hour. Historical issues and critical approaches to women and cinema that may include authorship, stardom, female genres, and images of women in Hollywood cinema, alternative cinema, and independent cinema from silent era to the present. Letter grading.

112. Film and Social Change. (6) Lecture/screenings, eight hours; discussion, one hour. Development of documentary and dramatic films in relation to and as a force in social development. Letter grading.

113. Film Authors. (6) Lecture/screenings, eight hours; discussion, one hour. In-depth study of a specific film author (director or writer). May be repeated once for credit with consent of department and topic change.

113A. Film Directors: Hitchcock and His Influence. (5) Lecture/screenings, five hours; discussion, one hour. Study of films of Alfred Hitchcock and influence he has had on other filmmakers. Lectures and screenings of Hitchcock films in first seven weeks, with coverage of films that are closely patterned after Hitchcock's in last three weeks. P/NP or letter grading.

113B. Film Authors: Women Filmmakers. (5) Lecture, five hours; discussion, one hour. Consideration of contributions to world cinema made by women directors, with focus on women directors working in various eras and modes of production (e.g., silent cinema, industry cinema, avant garde) with specific investigations of several auteurs, specifically Dorothy Azner, Jane Campion, and Cheryl Dunye. P/NP or letter grading.

114. Film Genres. (5) Lecture/screenings, five hours; discussion, one hour. Study of specific film genre (e.g., Western, gangster cycle, musical, silent epic, comedy, social drama). May be repeated once for credit with consent of department and topic change. P/NP or letter grading.

115. Stylistic Studies for Moving Image: Theory and Practice. (6) Lecture, four hours; discussion, one hour. Drawing heavily on wide array of historical examples, examination of many expressive strategies potentially usable in creation of moving image art forms: iconography, editing, composition, kinesthetics, sound, narrative, discourse, and performance. Letter grading.

116. Film Criticism. (4) Lecture, four hours; laboratory, to be arranged. Study of and practice in film criticism.

M117. Chicanos in Film/Video. (5) (Same as Chicana and Chicano Studies M114.) Lecture/screenings, five hours; discussion, one hour. Goal is to gain nuanced understanding of Chicano cinema as political, socioeconomic, cultural, and aesthetic practice. Examination of representation of Mexican Americans and Chicanos in four Hollywood genres—silent “greaser” films, social problem films, Westerns, and gang films—that are major genres that account for films about or with Mexican Americans produced between 1908 and 1980. Examination of recent Chicano-produced films that subvert or signify on these Hollywood genres, including *Zoot Suit*, *Ballad of Gregorio Cortez*, and *Born in East L.A.* Consideration of shorter, more experimental work that critiques Hollywood image of Chicanos. Guest speakers include both pioneer and up-and-coming filmmakers. P/NP or letter grading.

C118. Intermediate Cinematography. (4) Lecture, two hours; laboratory, four hours. Prerequisite: course 150. Intermediate study of principles of cinematography, with emphasis on exposure, lighting, and selection of film, camera, and lenses. Concurrently scheduled with course C416. Letter grading.

C120. Digital Cinematography. (4) Lecture, three hours. Advanced study of principles of digital cinematography, with emphasis on electronic exposure control, lighting, formats, cameras, and lenses. Concurrently scheduled with course C420. Letter grading.

126. Acting for Film and Television. (4) Laboratory, six hours. Projects in acting for television, video, and film. May be repeated twice for credit.

128. Media and Ethnicity. (4) Utilizing the Asian American experience, exploration of impact and uses of media on contemporary American ethnic communities. Role and techniques of media influence besides community utilization and production.

CM129. Contemporary Topics in Theater, Film, and Television. (2) (Same as Theater CM129.) Lecture, two hours; screenings, two hours. Limited to junior/senior and graduate theater/film and television students. Examination of creative process in theater, film, and television, with consideration of writing, direction, production, and performance. Overview of individual contributions in the collaborative effort; examination of distinctiveness and interrelations among these arts. Individual units include participation of leading members of theater, film, and television professions. May be repeated twice for credit. Concurrently scheduled with course CM229.

130A. Screenwriting Fundamentals. (2) Lecture, one hour. Corequisite for graduate students enrolled in course 431. Not open for credit to students with credit for course 130B (or 130C prior to Fall Quarter 2008). Examination of screenwriting fundamentals: structure, character and scene development, conflict, locale, theme, history of drama. Review of authors such as Aristotle, Egri. P/NP or letter grading.

130B. In-Depth Introduction to Fundamentals of Screenwriting. (4) (Formerly numbered 130C.) Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course 130A. Structural analysis of feature films and development of professional screenwriters' vocabulary for constructing, deconstructing, and reconstructing their own work. Screenings of films and selected film sequences in class and by assignment. P/NP or letter grading.

130C. Screenwriting Fundamentals Workshop. (4) (Formerly numbered 130B.) Seminar, three hours. Problems in film and television writing. P/NP or letter grading.

131. Nontheatrical Screenwriting for Film and Television. (4 or 8) Discussion, three hours. Research and writing of documentary, technical, educational, industrial, and propaganda scripts. May be repeated for a maximum of 12 units.

135A-135B-135C. Advanced Screenwriting Workshops. (8-8-8) Laboratory, three hours. Prerequisite: course 130B. Course 135A is requisite to 135B, which is requisite to 135C. Courses in film and television writing. First act of original screenplay to be developed in course 135A, followed by second act in course 135B, and third act in course 135C. Letter grading.

140. Interactive Expression. (4) Lecture, six hours. Introduction to history and practice of interactive media, with emphasis on uniqueness of computer-mediated expression. Letter grading.

C142. Digital Imagery and Visualization. (4) Lecture, three hours; laboratory, three hours. Introductory hands-on investigation of techniques of digital still imaging and aesthetics of digital image, in context of examining dynamics of cultural constructions and visual codes. Students conceive and produce several digital image visualizations. Concurrently scheduled with course C242. Letter grading.

C143. Moving Digital Image. (4) Lecture, three hours; laboratory, three hours. Investigation of different ways of creating and manipulating linear moving images (digital video) on desktop computers, exploring both creative and theoretical aspects of this pro-

duction environment. Students conceive and produce a number of short projects. Concurrently scheduled with course C243. Letter grading.

C144. Interactive Multimedia Authoring. (4) Lecture, three hours; laboratory, three hours. Introduction to expressive and aesthetic potential of interactive digital media and its theoretical issues. Exploration of methodologies and tools for media integration, interface design, and interactive audiovisual construction. Students conceive, produce, and master individual interactive multimedia projects. May be repeated once for credit. Concurrently scheduled with course C244. Letter grading.

C145. Creative Authoring for World Wide Web. (4) Lecture, three hours; laboratory, three hours. Exploration of creative aspects of World Wide Web as medium for personal/collective expression. Students produce Web works and serve them online. Contextualization of medium by looking at its history, embedded ideology, and sociopolitical consequences. May be repeated once for credit. Concurrently scheduled with course C245. Letter grading.

C147. Planning Independent Feature Production. (4) Lecture, three hours. Analysis of procedure, problems, and budgets in planning feature-length script for film and television production, with emphasis on role of producer and creative organizational techniques of producing. Concurrently scheduled with course C247. Letter grading.

C148. Advanced Digital Media Workgroup. (4) Discussion, four hours; laboratory, two hours. Designed for students with previous laboratory course experience, course provides opportunity to create large-scale digital media works with advanced software tools and techniques in small process-oriented, creative workshop environment. May be repeated once for credit. Concurrently scheduled with course C248. Letter grading.

C149A-C149B. Music in Film: Another Way to Tell Stories. (4-4) Lecture, three hours. Course C149A is requisite to C149B. Exploration of concepts and issues that drive creation and use of music in film. Through lecture/discussion and practical assignments, examination of deep collaboration between filmmaker and composer. Viewing of noteworthy examples and following of collaboration of filmmakers with composers, with weekly sessions dedicated to temping, creation and development of new scores, studio visits, and creative/conceptual dialogue between musician and filmmaker. Preparation of film ready for temping by end of first quarter and ready for scoring at beginning of second quarter. Concurrently scheduled with courses C455A-C455B. Letter grading.

150. Cinematography. (4) Lecture, three hours; laboratory, three hours. Limited to Film and Television majors. Introduction to image control in motion picture photography through exposure, lighting, and selection of film, camera, and lens. Supervised projects in photography to complement material covered in lecture.

151. Introduction to Experimental Filmmaking. (4) Lecture, three hours; laboratory, to be arranged. Limited to Film and Television majors. Techniques of image manipulation, design, and art direction. Production and completion of an exercise (no longer than three minutes), using 16mm nonsync sound film. May be repeated twice for credit. Letter grading.

152. Film and Television Sound Recording. (4) Lecture, three hours; laboratory, to be arranged. Limited to Film and Television majors. Introduction to principles and practices of film and television sound recording, including supervised exercises.

C152C. Digital Audio Postproduction. (4) Lecture, three hours; laboratory, three hours. Limited to departmental majors. Through discussion, demonstrations, and laboratory assignments, exploration of digital audio tools and procedures available to today's filmmakers. Coverage of many technical, equipment, and software step-by-steps, with emphasis on creative process. Concurrently scheduled with course C452C. Letter grading.

153. Motion Picture Lighting. (4) Lecture, three hours; laboratory, three hours. Requisite: course 150. Limited to Film and Television majors. Introduction to principles and tools of lighting used in visual storytelling through lectures, discussions, and screenings. Creative lighting techniques covering topics such as people, environment, spatial relationships, movement, color, special effects, and continuity.

154. Film Editing. (4) Lecture, three hours; laboratory, to be arranged. Limited to Film and Television majors. Introduction to artistic and technical problems of film editing, with practical experience in editing of image and synchronous sound.

C154B. Advanced Film Editing. (4) Lecture, three hours; laboratory, one hour. Preparation: submission of rough cut of existing project or proposal to edit work of another director. Requisite: course 154. Limited to film and television majors in postproduction phase with advanced knowledge of organization and operation of postproduction process. Students may also propose to edit significant scene given to them by instructor. Concurrently scheduled with course C454B. Letter grading.

155. Introduction to Digital Media and Tools. (4) Lecture, six hours; laboratory, to be arranged. Limited to Film and Television majors. Instruction and exercises in basic concepts and software of virtual production environments and digital postproduction tools. Letter grading.

163. Directing the Camera. (4) Workshop, eight hours. Limited to Film and Television majors. Investigation of expressive potential of the image within and beyond the narrative from a directorial perspective. Experiments with working methodologies which stimulate visual creativity and positioning the image as the fundamental element of cinematic expression.

164. Directing the Actor. (4) Exercises in analysis of script and character for purpose of directing actors. Emphasis on eliciting best possible performance from the actor. May be repeated twice for credit.

165. Advanced Narrative Television Directing. (4) Laboratory, six hours. Requisites: courses 130C, 185. Limited to Film and Television majors. Supervised exercises in television multicamera direction, with emphasis on creative use of cameras, sound, composition, and communication with those in front of and behind camera. May be repeated twice for credit. Letter grading.

C168. Creative Location Film Production. (8) Lecture, four hours; discussion, four hours; laboratory, to be arranged. Limited to directing or producer's program students. Problems of location, production, directing, and cinematography in various "real-life" practical locations. Practical application of solving problems and communication within limitations of production experience. Concurrently scheduled with course C468. Letter grading.

C170A. Introduction to Digital Effects. (4) Lecture, three hours; laboratory, to be arranged. Introductory study of digital effects production, with specific focus on motion graphics, compositing, effects processing, and title sequences. Concurrently scheduled with course C470A. Letter grading.

175A-175B. Undergraduate Film Production. (8-4 to 8) Limited to Film and Television majors. P/NP or letter grading. **175A.** Lecture, four hours; laboratory, eight hours. Writing, preproduction, and production for short film. **175B.** Lecture, three hours; laboratory, eight hours. Completion of postproduction (editing, creation of sound tracks) for short film begun in course 175A.

176A-176B. Advanced Undergraduate Video Production (8-4 to 8). Discussion, three hours; laboratory, to be arranged. Requisite: course 185. Limited to Film and Television majors. Completion of a video production (no more than 20 minutes), including its writing, production, and editing. Letter grading.

M177. Film and Television Acting Workshop. (2) (Same as Theater M178.) Laboratory, four hours. Workshop providing opportunities for students to rehearse, perform, and evaluate scenes. Three different production styles to which performers may need to

adjust are (1) preproduction rehearsals with director, (2) single-camera experience, and (3) multiple-camera experience. May be repeated twice for credit. Letter grading.

178. Film and Television Production Laboratory. (2 or 4) Laboratory, to be arranged. Supervised laboratory experience in various aspects of film and television production. May be repeated for a maximum of 12 units, but only 8 units may be applied toward Film and Television major.

181A. Introduction to Animation. (5) Lecture, three hours; laboratory, three hours. Drawing experience not required. Fundamentals of animation through preparation of short animated film. P/NP or letter grading.

181B. Writing for Animation. (4 to 8) Lecture, six hours; laboratory, to be arranged. Requisite: course 181A. Research and practice in creative writing and planning for animated film. May be repeated for a maximum of 16 units.

181C. Animation Workshop. (4 or 8) Lecture, six hours; laboratory, to be arranged. Preparation: storyboard at first class meeting. Requisite: course 181A. Organization and integration of various creative arts used in animation to form a complete study of a selected topic. May be repeated for a maximum of 16 units.

184A. Overview of Contemporary Film Industry. (4) (Formerly numbered 184.) Lecture, three hours. Examination of evolving economic structures and business practices in contemporary Hollywood film industry, with emphasis on operations of studios and independent distribution companies, their development, marketing, and distribution systems, and their relationship to independent producers, talent, and agencies. Letter grading.

184B. Overview of Contemporary Television Industry. (4) Lecture, three hours. Examination of evolving economic structures and business practices in contemporary Hollywood television industry, with emphasis on operations of networks and cable companies, series development, marketing, and network branding from 1947 to present. Letter grading.

185. Undergraduate Television and Video Production. (6) Laboratory, six hours. Limited to Film and Television majors. Instruction and exercises in basic techniques of television and video production. Letter grading.

186. Introduction to Documentary Video Production. (4) Lecture, three hours; laboratory, three hours; fieldwork, 12 hours. Limited to Film and Television majors. Viewing and discussion of selected documentaries and instruction in various production skills necessary to create video documentaries. Completion of a series of exercises from conceptualization through postproduction, culminating in production of short documentary.

187A-187B-187C. Producing and Directing Remote Multicamera Production. (4-6-6) Lecture/laboratory, three hours (additional hours to be arranged). Letter grading. **187A.** Professionally oriented lecture/laboratory/field workshop course designed to provide disciplined planning, responsible leadership, and organizational and problem-solving skills required in deadline remote production. Emphasis on clarity of vision, storytelling, effective execution of pitch, preproduction, shoot, and editorial. **187B-187C.** Instruction and supervised productions of the remote experience, with focus on development and execution of concept. Experience closely patterned after professional experiences in working with talent, production venues, and production logistics of remote on-location video programs.

188A. Special Courses in Film, Television, and Digital Media. (4) Lecture, three hours; discussion, one hour. Special topics in film, television, and digital media for undergraduate students taught on experimental or temporary basis. May be repeated for credit. P/NP or letter grading.

188B. Introduction to Art and Technique of Film-making. (4) Lecture, four hours; discussion, one hour. Students acquire understanding of practical and aesthetic challenges undertaken by artists and professionals in making of motion pictures and television.

Examination of film as both art and industry: storytelling, sound and visual design, casting and performance, editing, finance, advertising, and distribution. Exploration of American and world cinema from filmmaker's perspective. Honing of analytical skills and development of critical vocabulary for study of filmmaking as technical, artistic, and cultural phenomenon. P/NP or letter grading.

188C. Design and Experimental Digital Film Production. (4) Lecture, three hours; discussion, one hour. Students conceive, write, polish, shoot, and edit short digital experimental movies and crew on classmate projects. Experimentation with image, sound, and montage; examination of scenes from feature films and experimental short subjects. By end of term, students have one- to three-minute digital films with titles and sound track. P/NP or letter grading.

188D. Film Editing: Overview of History, Technique, and Practice. (4) Lecture, three hours. Practical application of film editing techniques, how they have evolved, and continue to evolve. Examination of history of editing, as well as current editing trends, terminology, and workflow. P/NP or letter grading.

188E. Digital Cinematography. (4) Lecture, three hours. With lectures, screenings, and demonstrations, study of principles of digital cinematography. How tools and techniques affect visual storytelling process. Topics include formats, aspect ratios, cameras, lenses, special effects, internal menu picture manipulation, lighting, composition, coverage, high definition, digital exhibition, filtration, multiple-camera shooting. P/NP or letter grading.

188F. Hollywood Now! (6) Lecture and screenings, eight hours; discussion, one hour. Hollywood film industry from late 1990s to present. Multifaceted industry with interrelated organizational, technological, demographic, narrative, ideological, and aesthetic foundations, Hollywood is dynamic industry marked by contradictory forces of stability and change, continuity, and innovation. Examination of emergence of new paradigms, narratives, genres, styles, and modes of address as they are developed by new generation of filmmakers and targeted at new kinds of audiences that are increasingly younger and more global, as illustrated by Hollywood's new star directors: David Fincher, Steven Soderbergh, Paul Thomas Anderson, Quentin Tarantino, Alexander Payne, Wes Anderson, George Clooney, Sofia Coppola, and others. P/NP or letter grading.

188G. Asian Action Films. (6) Lecture and screenings, eight hours; discussion, one hour. Historical, cultural, and critical survey of action film genre from Hong Kong, Taiwan, Japan, and South Korea. Recent global popularity of East Asian action films created new genre that combines themes of American action film, emphasizing spectacle over narrative, with philosophies and action styles of East Asian cultures that produce these films. Exploration of circulation of national-popular traditions within international contexts. Study of more enduring, exciting subgenres and national specialties of genre that has shaped its cinematic production and achieved success beyond Asia, including kung fu and other martial arts films, yakuza or gangster films, and flying swordsman films. How gender and race shape action genre, as well as stars like Bruce Lee, Jackie Chan, and Michelle Yeoh. Examination of issues of industry and authorship, and producers/directors such as Shaw Brothers, Seijun Suzuki, Tsui Hark, King Hu, and John Woo. P/NP or letter grading.

188I. Writing for Animation Series. (5) Lecture, three hours. Introduction to craft and business of writing animation for television. Overview of history of animation produced specifically for this medium, along with its many formats. Business model has changed radically over past five decades, as have types of shows that have been created. Designed to put shows in historical perspective, with eye toward where industry is heading given changes in technology and continuing (and growing) scrutiny of outside forces such as corporations and FCC. Letter grading.

188J. Disney Feature: Then and Now. (5) Lecture, three hours; discussion, three hours. Study and analysis of Disney's animated features. Evaluation of why Disney's animated features have dominated until recently and ramifications of this dominance on animation and society. Letter grading.

188K. Visual Effects. (4) Lecture, three hours. Nearly every film employs some form of visual effects, whether in reconstructing backdrop of history, creating futuristic or fantasy world, or simply fixing weather or production problems. Discussion of evolution of visual effects, as well as problems and blessings inherent in constantly evolving technology. Top visual effects consultants to be guest lecturers. P/NP or letter grading.

188M. Film and Television Directing. (4) Lecture, three hours. Through discussions, screenings, demonstrations, and guests, exploration of script, previsualization, directing actors, directing camera coverage in relationship to story, practical on-set directing, and directing for camera. P/NP or letter grading.

188N. History of Animation in American Film and Television. (5) Lecture, six hours. Survey of art of animation in America from its precinema origins to recent films of Disney, Pixar, DreamWorks, Ghibli, and others. Place of animation in pop culture, racial imagery and ethnic stereotypes, growth of art form, and how it reflects American society. P/NP or letter grading.

193A. Film Curatorship. (4) Lecture, two hours; discussion, two hours; laboratory, four hours. Study of principles and techniques of film curatorship and research, including but not limited to acquisitions, cataloging, storage, and retrieval systems. Special attention to application of new technology, equipment, and program materials to film archival-library design for research and teaching.

193B. Television Curatorship. (4) Lecture, two hours; discussion, two hours; laboratory, four hours. Study of principles and techniques of television curatorship and research, including but not limited to acquisitions, cataloging, storage, and retrieval systems. Special attention to application of new technology, equipment, and program materials to television archival-library design for research and teaching.

194. Internship Seminars: Film, Television, and Digital Media. (2) Seminar, two hours. Corequisite: course 195. Open to juniors/seniors who are interning in film or television industry and to nonmajors. Nonmajors must complete application in Internship Office, 203 East Melnitz Building, to be considered. Discussion of contemporary industry issues and practices. May be repeated for credit. Letter grading.

195. Corporate Internships in Film, Television, and Digital Media. (2 to 6) Tutorial, two hours; fieldwork, 14 or 20 hours. Corequisite: course 194. Open to junior/senior majors who are interning in film or television industry and to nonmajors. Nonmajors must complete application in Internship Office, 203 East Melnitz Building, to be considered. Corporate internship in supervised setting in business related to film and television industries. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for credit. Individual contract with supervising faculty member required. Letter grading.

199. Directed Research or Senior Project in Film, Television, and Digital Media. (2 to 8) Tutorial, three hours. Limited to senior Film and Television majors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be taken for maximum of 8 units. Individual contract required. P/NP or letter grading.

Graduate Courses

200. Seminar: Bibliography and Methods of Research in Film and Television. (6) Seminar, three hours; laboratory, four to six hours (additional screenings and/or video laboratory work as required). Designed for graduate students. Examination and study of research methods, techniques, and resources related to film and television research, including development of computer skills for preparation of bibliogra-

phies, online database searching and retrieval and, when appropriate, use of computer/videodisc technology for research. Letter grading.

201. Seminar: Media Industries and Cultures of Production. (6) Seminar, three hours; film screenings, three hours. Theory and method in study of media industries, with focus on cultures of production (production world as cultural form). Investigation of ways production practice itself is sociological, institutional, cultural, and critical practice. Letter grading.

202. Seminar: Media Audiences and Cultures of Consumption. (6) Seminar, three hours; film screenings, three hours. Critical study of reception and use of television and electronic media and examination of theoretical approaches to culture and audience research. Consideration of issues of cultural taste, consumerism, style/lifestyle, identity, and relationships between audience, industry, and mass-marketed images/commodities. Letter grading.

203. Seminar: Film and Other Arts. (6) Seminar, three hours; film screenings, four to six hours. Designed for graduate students. Studies in interrelationships between film and fine arts, or performing arts, or literature, with emphasis on ways these other arts have influenced film. May be repeated twice for credit.

204. Seminar: Visual Analysis. (6) Seminar, three hours; film screenings, two to four hours. Study of visual analysis (or textual analysis), using DVD accessing features, as approach to learning what makes film great and distinct art form. Exploration of role of visual style in narrative fiction filmmaking to attempt to understand some ways it can operate. Letter grading.

205. Seminar: DVD for Film History and Analysis. (6) Seminar, three hours; laboratory, three hours. Preparation of individual original research projects in film and/or television history and analysis designed to be presented as DVD visual essays. Projects may be extensions of work intended for print publication or dissertation writing, or for pedagogical uses. Equal emphasis on research and DVD creation, and on comparing publication in DVD format versus print publication. Letter grading.

206A. Seminar: European Film History. (6) Seminar, three hours; film screenings, four to six hours. Requirement: course 106B. Designed for graduate students. Studies in selected historical movements such as expressionism, socialist realism, surrealism, neorealism, New Wave, etc. May be repeated twice for credit.

206B. Seminar: Selected Topics in American Film History. (6) Seminar, three hours; film screenings, three hours. Seminar with focus on specific topic or period in American film history. Letter grading.

206C. Seminar: American Film History. (6) Seminar, three hours; film screenings, four hours. Introduction to industrial, social, and aesthetic history of the American film. Letter grading.

206D. Seminar: Silent Film. (6) Seminar, three hours; film screenings, two to four hours. Discussion of silent film from its beginning in 1895 to transition to sound cinema in 1927 to 1930. Film viewings discussed in terms of genre, national cinema, formal developments, and directors. Readings on film historical and theoretical issues. Letter grading.

207. Seminar: Experimental Film. (6) Seminar, three hours; film screenings, four to six hours. Designed for graduate students. Studies of form, style, politics, and history of experimental, innovative, avant-garde, and minority film and video.

208A. Seminar: Film Structure. (6) Seminar, three hours; film screenings, four to six hours. Designed for graduate students. Examination of various film conventions, both fictional and nonfictional, and of role of structure in motion picture. S/U or letter grading.

208B. Seminar: Classical Film Theory. (6) Seminar, three hours; film screenings, four hours. Study of principal topics and lines of inquiry that characterize theoretical writings of Arnheim, Eisenstein, Bazin, Kracauer, etc. Letter grading.

208C. Seminar: Contemporary Film Theory. (6) Seminar, three hours; film screenings, four to six hours. Requisite: course 208B. Designed for graduate students. Study of redefinition of aims and methods of film theory through contemporary writings. S/U or letter grading.

209A. Seminar: Documentary Film. (6) Seminar, three hours; film screenings, four to six hours. Designed for graduate students. Nonfictional film and its relation to contemporary culture.

209B. Seminar: Fictional Film. (6) Seminar, three hours; film screenings, four to six hours. Designed for graduate students. Film as fiction and its relation to contemporary culture. May be repeated once for credit.

209D. Seminar: Animated Film. (4) Seminar, three hours; laboratory, three hours. Designed for graduate students. Critical study of animated film: its historical development, structure, style, use, and relation to contemporary culture.

210. Seminar: Contemporary Broadcast Media. (4) Seminar, three hours (additional hours as required). Designed for graduate students. Consideration of issues raised by recent developments in television and radio, commercial and public, associated with innovations in satellite, cable, and cartridge systems.

211A. Seminar: Historiography. (4) Seminar, three hours. Limited to Film and Television M.A. candidates. Beginning examination of function and methods of writing film and television history as seen in works of key historians in the U.S. and Europe.

211B. Seminar: Historiography. (4) Seminar, three hours. Limited to Film and Television Ph.D. candidates. Examination of function and methods of writing film and television history as exemplified by key works in this tradition, with attention to central issues of historical thought on the media.

215. Seminar: Theory and Method. (6) Seminar, three hours. Limited to Film and Television Ph.D. candidates. Examination of major modes of theoretical reflection that bear on film and television through study of central texts of such traditions as phenomenology, auteurism, semiology, psychoanalysis, sociology, etc. S/U or letter grading.

217A. Seminar: American Television History. (6) Seminar, three hours; screenings, four hours. Critical survey of U.S. television industry from its inception to present. Examination of programming and changes within industry by considering range of technological, economic, aesthetic, social, and cultural dimensions. Letter grading.

217B. Seminar: Selected Topics in Television History. (6) Seminar, three hours; screenings, three hours. Advanced critical seminar, with focus on specific topic or area (historical period, industry, programming, genre, or social formation) in domestic or international television. Letter grading.

218. Seminar: Culture, Media, and Society. (6) Seminar, three hours; screenings/discussion, four hours. Emphasis on "discourse of the other(s)." The matization of the other is concerned with theories of "difference" rather than similarity or identity—with how other cultures enter into politics of representation and representation of politics through metaphors of (1) difference without opposition, (2) heterogeneity without hierarchy, and/or (3) otherness without ethnocentrism. Examination of how women, national minorities, and Third World peoples have been rendered others; place of cinematic apparatus in this process and how academization of others is positioned vis-à-vis mainstream critical discourse. Letter grading.

219. Seminar: Film and Society. (6) Seminar, three hours; film screenings, four to six hours. Designed for graduate students. Study of ways film affects and is affected by social behavior, belief, and value systems; considered in relation to role of media in society. May be repeated once for credit.

220. Seminar: Television and Society. (6) Seminar, four hours; screenings/discussion, three hours. Designed for graduate students. Study of ways television forms affect and are affected by social behavior, be-

lief, and value systems; study of technological and economic aspects of the medium. May be repeated once for credit. S/U or letter grading.

221. Seminar: Film Authors. (6) Seminar, three hours; film screenings, four to six hours. Designed for graduate students. Intensive examination of works of outstanding creators of films. May be repeated twice for credit.

222. Seminar: Film Genres. (6) Seminar, three hours; film screenings, four to six hours. Designed for graduate students. Studies of patterns, styles, and themes of such genres as the Western, gangster, war, science fiction, comedy, etc. May be repeated twice for credit.

223. Seminar: Visual Perception. (6) Seminar, three hours; film screenings, three hours. Aesthetic, psychological, physiological, and phenomenological approaches to vision as they relate to ways in which viewers experience and "see" film, television, and digital media. Letter grading.

224. Computer Applications for Film Study. (6) Lecture, three hours; film screenings, three hours. Survey of computer applications relevant to film study, principally computer-video disc systems and image capture technology. S/U or letter grading.

225. Seminar: Videogame Theory. (6) Seminar, three hours; laboratory, three hours. Videogame theory, with exploration of nature of medium, rather than looking at history, industrial practice, social effects, or any other of many interesting questions that games also raise. Acknowledgment of roots in film, television, and media studies and investigation of emerging videogame field. S/U or letter grading.

CM229. Contemporary Topics in Theater, Film, and Television. (2) (Same as Theater CM229.) Lecture, two hours; screenings, two hours. Limited to junior/senior and graduate theater/film and television students. Examination of creative process in theater, film, and television, with consideration of writing, direction, production, and performance. Overview of individual contributions in the collaborative effort; examination of distinctiveness and interrelations among these arts. Individual units include participation of leading members of theater, film, and television professions. May be repeated twice for credit. Concurrently scheduled with course CM129.

C242. Digital Imagery and Visualization. (4) Lecture, three hours; laboratory, three hours. Introductory hands-on investigation of techniques of digital still imaging and aesthetics of digital image, in context of examining dynamics of cultural constructions and visual codes. Students conceive and produce several digital image visualizations. Concurrently scheduled with course C142. Letter grading.

C243. Moving Digital Image. (4) Lecture, three hours; laboratory, three hours. Investigation of different ways of creating and manipulating linear moving images (digital video) on desktop computers, exploring both creative and theoretical aspects of this production environment. Students conceive and produce a number of short projects. Concurrently scheduled with course C143. Letter grading.

C244. Interactive Multimedia Authoring. (4) Lecture, three hours; laboratory, three hours. Introduction to expressive and aesthetic potential of interactive digital media and its theoretical issues. Exploration of methodologies and tools for media integration, interface design, and interactive audiovisual construction. Students conceive, produce, and master individual interactive multimedia projects. May be repeated once for credit. Concurrently scheduled with course C144. Letter grading.

C245. Creative Authoring for World Wide Web. (4) Lecture, three hours; laboratory, three hours. Exploration of creative aspects of World Wide Web as medium for personal/collective expression. Students produce Web works and serve them online. Contextualization of medium by looking at its history, embedded ideology, and sociopolitical consequences. May be repeated once for credit. Concurrently scheduled with course C145. Letter grading.

246. Seminar: Issues in Electronic Culture. (6) Seminar, three hours; laboratory, three hours. Critical studies seminar with major hands-on laboratory component that explores impact of new digital technologies on contemporary culture and aesthetics. Students do laboratory projects using visualization, image manipulation tools, and Internet authoring tools. Letter grading.

C247. Planning Independent Feature Production. (4) Lecture, three hours. Analysis of procedure, problems, and budgets in planning feature-length script for film and television production, with emphasis on role of producer and creative organizational techniques of producing. Concurrently scheduled with course C147. Letter grading.

C248. Advanced Digital Media Workgroup. (4) Discussion, four hours; laboratory, two hours. Designed for students with previous laboratory course experience, course provides opportunity to create large-scale digital media works with advanced software tools and techniques in small process-oriented, creative workshop environment. May be repeated once for credit. Concurrently scheduled with course C148. Letter grading.

249. Digital Revolution. (4) Lecture, four hours; discussion, one hour; laboratory, one hour. Comprehensive survey to introduce students to emerging digital technologies, resulting new media, and their artistic, economic, and social implications. Topics include digital editing, digital previsualization, multimedia, World Wide Web, interactive television, and virtual reality.

270. Seminar: Film Criticism. (6) Seminar, three hours; film screenings, four to six hours. Designed for graduate students. Study of key aesthetic questions of analysis and evaluation in relation to central works of motion picture criticism. May be repeated once for credit.

271. Seminar: Television Criticism. (6) Seminar, four hours; screenings/discussion, three hours. Designed for graduate students. Analysis of major forms of television production and criticism it has elicited. May be repeated once for credit. S/U or letter grading.

273. Seminar: Contemporary Film and Television Criticism. (6) Seminar, three hours; film and television screenings, four to six hours. Limited to Film and Television Ph.D. candidates. Study and practice of analytic and critical response, with emphasis on contemporary film and television. S/U or letter grading.

274. Seminar: Research Design. (6) Seminar, three hours. Designed for second-year Film and Television Ph.D. students. Examination of general principles that govern formulation of major research projects and preparation of prospectus for Ph.D. dissertation. S/U or letter grading.

276. Seminar: Non-Western Films. (4) Seminar, three hours (additional hours as required). Designed for graduate students. Study of aesthetic and ideological impulses of selected films from Asia, Africa, and Latin America.

277. Seminar: Narrative Studies. (6) Seminar, four hours; screenings/discussion, three hours. Designed for graduate students. Study of writings on theory of narrative structure and their significance for analysis of film forms. S/U or letter grading.

283A. Developing Comedy Series. (4) Seminar, three hours. Basic tenets and analysis of television comedy shows and contemporary industry production and business practices. Development of original show concepts and pitch for review and feedback by class, instructor, and guests. Letter grading.

283B. Writing Television Comedy Scripts. (4) Seminar, three hours. Examination of basics of half-hour pilot format, style, and content and learning of principles behind network needs and choices in choosing pilots. Forum in which to discuss ideas and issues with class and instructor. Weekly progress on original half-hour pilot required. Letter grading.

283C. Running Television Comedy Room. (4) Seminar, three hours. Practical knowledge about skills necessary to be writer/executive producer of half-hour comedy show. Focus on community building, collaboration, and leadership skills needed to

successfully function in writers' room, as well as breaking stories, writing, and rewriting television scripts. Letter grading.

284A. Developing Drama Series. (4) Seminar, three hours. Basic tenets and analysis of television drama shows and contemporary industry production and business practices. Development of original show concepts and pitch for review and feedback by class, instructor, and guests. Letter grading.

284B. Writing Television Drama Scripts. (4) Seminar, three hours. Examination of basics of drama pilot format, style, and content and learning of principles behind network needs and choices in choosing pilots. Forum in which to discuss ideas and issues with class and instructor. Weekly progress on original drama pilot required. Letter grading.

284C. Running Television Drama Room. (4) Seminar, three hours. Practical knowledge about skills necessary to be writer/executive producer of one-hour drama show. Focus on community building, collaboration, and leadership skills needed to successfully function in writers' room, as well as breaking stories, writing, and rewriting television scripts. Letter grading.

287A. Introduction to Art and Business of Producing I. (4) Seminar, three hours. Introduction for first-year producers program students to producer's role in navigating unique dynamic between art and commerce in entertainment industry. Overview of development, production, and distribution of feature films for worldwide theatrical market, including identifying material, attracting elements, and understanding basics of studio and independent financing and distribution. S/U or letter grading.

287B. Introduction to Art and Business of Producing II. (4) Seminar, three hours. Requisite: course 287A. Builds on principles taught in course 287A and presents continuation of study of development, production, and distribution of feature films for worldwide theatrical market, including identifying material, attracting talent elements, and understanding basics of studio and independent financing and distribution. Minimum of two unproduced screenplays to be presented for review by class and instructor to begin identifying potential thesis projects. S/U or letter grading.

287C. Introduction to Art and Business of Producing III. (4) Seminar, three hours. Requisites: courses 287A, 287B. Builds on principles taught in courses 287A and 287B. Presentation of screenplays prepared in course 287B for review by class and instructor with goal of isolating and identifying primary and secondary thesis projects. Discussions of script analysis and creating set of viable development notes for primary projects. Completion of written outline for original projects and pitching of primary projects to panel of industry executives for further feedback. S/U or letter grading.

288A-288B-288C. Feature Film Development I, II, III. (4-4-4) Lecture, three hours. Course 288A is requisite to 288B, which is requisite to 288C. Practical hands-on approach to understanding and implementing producer's role in development of feature film screenplay and negotiating particulars of production process. Through in-class discussions, script analysis, story notes, and select guest speakers, exposure to various entities that comprise feature film development process. S/U or letter grading. **288A.** Basic introduction to story and exploration of proper technique for evaluating screenplays through writing of coverage. **288B.** Deeper evaluation of screenplay through writing of story notes. **288C.** Story development and art of pitching. Script evaluation and work in groups of two to build three-act structure and create compelling characters for original ideas pitched in class.

289A. Current Business Practices in Film and Television. (4) Discussion, three hours. Requisite: course C247. Designed for graduate students. Examination of current status of financing/production/distribution agreements, union agreements, music, copyright, etc., necessary to understand film and television industry. S/U or letter grading.

289B. Strategy. (4) Lecture, three hours. Course 289A is not requisite to 289B. Examination of business realities of industry, with focus on techniques for ana-

lyzing behavior, making strategic decisions, and overcoming obstacles to achieving results as producer, writer, or director. Assignments designed to assist students in articulating and achieving their goals and to help them effectively transition from classroom to their careers in entertainment industry. S/U or letter grading.

289C. Independent Spirit: Creative Strategies for Financing and Distributing Independent Features.

(4) Lecture, three hours. Course 289B is not requisite to 289C. Key insights into financing and distribution of independent or "specialty" films. Topics include film finance, production, marketing, distribution, agents, and new technology, with emphasis on applying this knowledge to individual student projects. S/U or letter grading.

290A. Research and Development I. (4) Seminar, three hours. Forum for roundtable strategy sessions and mock story meetings with instructor, students, and various industry guests. Development of one story idea for thesis project. S/U or letter grading.

290B. Research and Development II. (4) Seminar, three hours. Forum for roundtable strategy sessions and mock story meetings. Students must make concrete weekly progress on thesis project and adapt strategy based on feedback received. Development of marketing and business strategies for story idea set up in course 290A. S/U or letter grading.

290C. Research and Development III. (4) Seminar, three hours. Final stages of thesis preparation for evaluation. Guidance provided by instructor on how to effectively present selected project. Requirements include industry-related book reports, script analysis, "pitching" selected concept, weekly research to understand marketplace, accumulation and updating of data, and justification for potential "buyers" comprised of industry professionals. S/U or letter grading.

291A. Studios versus Independents: Navigation Process. (4) Lecture, three hours. Tools necessary for producer to navigate Hollywood entertainment industry. Topics discussed through lectures and guest speakers include impact of difficulty to navigate relationship between art and commerce in craft of filmmaking, rapid advance of new technologies, diverse new means of building finance capital for emerging producing entities, and what future may hold for truly independent filmmaker. S/U or letter grading.

291B. Feature Film Marketing. (4) Lecture, three hours. Course 291A is not requisite to 291B. Examination of numerous groups that are responsible for specific marketing components and make up marketing departments. Distribution and in-theater marketing, trailers, publicity, promotions, research, and media. Mechanics and levels of intuition required to make sure movies are seen by public. S/U or letter grading.

291C. Feature Film Distribution and Exhibition. (4) Lecture, three hours. Course 291B is not requisite to 291C. Investigation of philosophy, structure, and major players that make up entertainment industry, with emphasis on film distribution and exhibition. Through lectures, readings, and guest speakers, exploration of interrelated arenas of production, marketing, business affairs, media, and impact of international market on distribution and exhibition of studio releases. S/U or letter grading.

292A. Overview of Network Television Management. (4) Lecture, three hours. Designed to expand basic understanding of network and cable television business. Exploration of role of showrunner, executives from networks and production companies, packaging agents, and studios responsible for developing and creating programming. S/U or letter grading.

292B. Who Produces Television? Showrunner, Nonwriting Producer, Network Executive, Studio Executive, or Agent? (4) Lecture, three hours. Course 292A is not requisite to 292B. In-depth look at role that key individuals play in getting television shows on air. Discussion of readings, lectures, and distinguished guests from each area of television industry: networks, studios, agencies, and production companies. S/U or letter grading.

292C. Running Shows: Producing for Broadcast and Cable. (4) Lecture, three hours. Course 292B is not requisite to 292C. Exploration of role of writers-producers or showrunners in creating television shows. Designed to train writers who typically enter field as staff writers and to develop concrete tools of producers. Training of next generation of nonwriting network and studio development executives whose job it is to assist writers-producers in highly collaborative process of creating, developing, producing, and scheduling television programming. S/U or letter grading.

293. Seminar: Film and Television Curatorship. (4) Seminar, three hours (additional hours as required). Designed for graduate students. Study and practice of issues in archival research and administration.

294A. Contracts and Negotiation. (4) Lecture, three hours. Survey of range of contracts involved in studio productions, including literary submission and option agreements, artist employment, director employment, writer collaboration agreements, coproduction agreements, music rights license, etc. Actual studio agreements referenced to illuminate potential consequences of each transaction. Negotiation strategy exercises. S/U or letter grading.

294B. Entertainment Law, Business Practices, and Negotiation Strategies. (4) Lecture, three hours. Course 294A is not requisite to 294B. In-depth analysis of structure, economics, and legal aspects of entertainment industry, with emphasis on television and film. Topics include intellectual property and proprietary rights, project development and production, talent, guilds, distribution and financing, ancillary rights, and music rights. Advanced negotiation strategy exercises. S/U or letter grading.

294C. International Financing and Distribution. (4) Lecture, three hours. Course 294B is not requisite to 294C. Legal-based course dealing with independent finance and distribution of feature films. Topics include fundamentals of film financing, domestic distribution, international distribution, European coproductions, role of foreign sales agents and of bankers and completion bond companies. S/U or letter grading.

295A. Art of Presentation. (4) Lecture, three hours. Cultivation of skills needed for students to present themselves and their project goals with clarity and precision to industry professionals. Oral presentations designed to enhance student ability to deliver convincing arguments on range of topics. S/U or letter grading.

295B. Advanced Film and Television Producing Workshop for Producers, Writers, and Directors. (4) Lecture, three hours. Course 295A is not requisite to 295B. Designed to help producers, as well as screenwriters and directors, focus on networking opportunities and to develop strategies to bring their feature and television projects to marketplace. Case-study documents (drafts of screenplays, dailies, etc.) from current or recently produced projects provided. S/U or letter grading.

295C. Advanced Producing: Role of Successful Producer. (4) Lecture, three hours. Designed to provide producers with comprehensive understanding of business acumen involved in purchasing scripts for studios and independent production companies. Through script analysis and in-class discussions, students encouraged to examine not just story elements, but marketing assets inherent in pieces of material. S/U or letter grading.

296A. Role of Talent Agencies. (4) Lecture, three hours. Introductory overview of various departments at agencies, including motion picture literary, talent, story, packaging, and television, and examination of various interactions among each. Exercises encourage producers, writers, and directors to learn how to work effectively with individuals at talent agencies. S/U or letter grading.

296B. Who Represents Me? (4) Lecture, three hours. Course 296A is not requisite to 296B. In-depth analysis of different forms of representation offered by agents, managers, business managers, and lawyers and detail of legal rights and responsibilities of each. Exercises require students to represent rights holders in series of potential projects. S/U or letter grading.

297A-297B-297C. New Media Marketing I, II, III. (4-4-4) Seminar, three hours. Course 297A is requisite to 297B, which is requisite to 297C. Overview of changing world of storytelling through development of new technologies and new media. Development of short teaser/trailer or website using digital resources (digital cameras, editing, and new media effects) to promote student feature or television thesis project. S/U or letter grading.

298A-298B. Special Studies in Film and Television. (2 to 4 each) Lecture/discussion. Designed for graduate students. Seminar study of problems in film and television, organized on topic basis. May be repeated once for credit.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

400. Film Image Design Laboratory. (4) Lecture, two hours; laboratory, six hours. Limited to graduate film and television students. Conception and design of nonnarrative film imagery. One-minute experiments in the relation of meaning to technique, including manipulation of optics, photochemistry, elements of electronic processes, and display of time and motion. May be repeated once for credit.

401. Film Analysis for Filmmakers. (4) Lecture/screenings, five hours. Limited to graduate film and television students. Drawing heavily from array of historical examples, examination of many expressive strategies useable in creation of moving image art forms. Unifying theory and practice, presentation of approach to viewing great films of past that empowers filmmakers to use sound and images to tell original stories in present. Focus on strategic decision making in areas of writing, design, cinematography, editing, sound, and performance to enable filmmakers to discover their own personal style for telling stories on screen. Letter grading.

402A-402B. Advanced Narrative Directing Workshops. (4 or 8-8) Limited to nine graduate film and television students. Production of a 10- to 15-minute fiction film or project. Letter grading. **402A.** Laboratory, six or 12 hours; fieldwork, to be arranged. Requisites: courses 405, 409, 410A, 410B, 410C, 433. Students budget and preproduce their projects by end of first term. **402B.** Laboratory, 12 hours; fieldwork, to be arranged. Requisite: course 402A. In second term students must complete photography on location and/or in studio.

402C. Advanced Narrative Directing Workshop. (4) Laboratory, four hours. Requisites: courses 402A, 402B. Completion of postproduction on projects started in courses 402A and 402B. Letter grading.

403A-403B-403C. Advanced Documentary Workshops. (4 to 8 each) Lecture/discussion/laboratory, 16 to 24 hours; fieldwork, to be arranged. Requisites: courses 405, 409, 410A, 410B, 410C, 433. Limited to graduate film and television students. Production of advanced individual documentary film or video projects. Students conceptualize, research, write, shoot (on location), and edit projects to completion. May be repeated once for credit.

404A-404B. Advanced Abstract/Experimental Media Workshops. (8-8) Lecture/discussion/laboratory, 12 hours; fieldwork, to be arranged. Requisites: courses 405, 409, 410A, 410B, 410C, 433. Limited to 10 students per section. Production of a 20-minute abstract or experimental film, video, or multimedia project. Students plan, design, and shoot their projects in first term and work as crew for each other in rotating assignments. In second term students must complete postproduction of their projects.

404C. Advanced Abstract/Experimental Media Workshop. (8) Lecture/discussion/laboratory, 12 hours; fieldwork, to be arranged. Requisites: courses 404A, 404B. Completion of all stages of production and postproduction on projects started in courses 404A and 404B. Letter grading.

- 405. Television Production Workshop. (8)** Laboratory, eight hours; other, to be arranged. Limited to graduate film and television students. Basics of television production and direction, focusing on studio multiple camera with minimal use of remote camera. Use of various formats of video production, including scripted and nonscripted projects, culminating in a narrative three-camera project.
- 406. Experimental Video Workshop. (4)** Laboratory, six hours; other, to be arranged. Limited to graduate film and television students. Introduction to independent and experimental video with examination of impact of new video technologies in television, covering concepts of video art, new television, digital video, high-definition TV, and film and tape postproduction.
- 407. Video Documentary Workshop. (8)** Laboratory, 12 hours. Limited to graduate film and television students. Exploration of documentary video, including screening a variety of international works and producing a short documentary project using single-camera field production techniques.
- 408A-408B. Video Editing. (4-4)** Discussion, four hours; laboratory, to be arranged. Limited to graduate film and television students. Individual instruction in electronic editing. **408A.** Online Editing; **408B.** Offline Editing.
- 409. Directing the Actor for the Camera Workshop. (4)** Workshop, six hours; laboratory, to be arranged; laboratory preparation, two to four hours. Limited to M.F.A. production program students. Team-taught with five weeks designed to give the director actor/camera techniques, and five weeks to offer basic strategies to elicit good performances from actors. Emphasis on problems faced when directing actors for film.
- 410A. Symposium. (2)** Seminar, three hours. Limited to and required of first-year M.F.A. production program students. Exploration of principal concepts of film and television production within context of preproduction, production, and postproduction, providing forum for synthesis of knowledge gained in various first-year technical craft courses. Exploration of strategies for learning production within academic environment. May be repeated for credit. Letter grading.
- 410B. Cinematography. (2)** Seminar, three hours. Limited to and required of first-year M.F.A. production program students. Production workshop designed to give hands-on experience in all aspects of film production (tools and practicum of medium) as each student writes/directs/edits six-minute film. May be repeated for credit. Letter grading.
- 410C. Postproduction. (2)** Seminar, three hours. Limited to and required of first-year M.F.A. production program students. Production workshop designed to give hands-on experience in all aspects of film production (tools and practicum of medium) as each student writes/directs/edits six-minute film. May be repeated for credit. Letter grading.
- 410D. Postproduction Sound. (2)** Seminar, three hours. Requisites: courses 405, 409. Limited to and required of first-year M.F.A. production program students. Technical and aesthetic aspects of postproduction sound recording, editing, and rerecording for film and television. Application of principles of sound design to student films while using UCLA's John Candy Room and Scoring Stage for Automatic Dialogue Replacement (ADR), Foley, and mixing. Use of Pro Tools LE for recording, editing, and mixing, selection and use of microphones and mixing consoles, and incorporation of Final Cut Pro soundtracks into mix environment. Students record ADR and Foley and present mix of edited dialogue/ADR, Foley, sfx, and music tracks by end of term. Letter grading.
- 410E. Production. (12)** Lecture, three hours; fieldwork, 24 to 40 hours. Requisites: courses 401, 409, 410A through 410D. Limited to and required of first-year M.F.A. production/directing students. Designed to give hands-on experience in film production. Students prepare and direct six-minute films and serve in preassigned crew positions for each other. Letter grading.
- 411. Survey of Multimedia Production. (4)** Lecture, three hours; laboratory, three hours. Introduction to various methods of digital production, with focus on photo manipulation, desktop nonlinear postproduction, and distribution on World Wide Web. Letter grading.
- 416. Intermediate Cinematography. (4)** Lecture, two hours; laboratory, four hours. Requisite: course 150. Intermediate study of principles of cinematography, with emphasis on exposure, lighting, and selection of film, camera, and lenses. Concurrently scheduled with course C118. Letter grading.
- 417. Lighting for Film and Television. (4)** Lecture, two hours; laboratory, six hours. Limited to graduate film and television students. Lectures, supervised exercises on a stage or in an exterior, screenings of scenes, and discussions aimed at learning to master the lighting to create an appropriate mood or atmosphere of a premeditated scene recorded on a film or through an electronic system. May be repeated twice for credit. Letter grading.
- 418. Cinematography and Directing. (4)** Lecture, two hours; laboratory, six hours. Requisite: course 417. Limited to graduate film and television students. Supervised filming of short dramatic projects on sound stage and at exterior locations that explore complexity of process, emphasizing balance and collaboration essential to both directing and photography in its varied technical, production, and creative aspects. Letter grading.
- 419. Advanced Cinematography. (4)** Lecture, two hours; discussion, one hour; laboratory, one hour. Requisites: courses 417, 418. Limited to graduate film and television students. Advanced study of principles of cinematography, with emphasis on exposure, lighting, and selection of film, camera, and lenses.
- 420. Digital Cinematography. (4)** Lecture, three hours; laboratory, two hours. Advanced study of principles of digital cinematography, with emphasis on electronic exposure control, lighting, formats, cameras, and lenses. Concurrently scheduled with course C120. Letter grading.
- 423A. Direction of Actors for Film and Television. (4)** Lecture, four hours; workshop. Preparation: first film project. Limited to graduate film and television students. Required of all production majors shooting a fiction thesis. Exercises in analysis of script and character for purpose of directing actors in film and television productions. Emphasis on eliciting best possible performance from the actor. May be repeated twice for credit.
- 423B. Advanced Direction of Actors for Film and Television. (4)** Studio workshop, six hours. Requisite: course 423A. Limited to graduate film and television students. Advanced study and practice of directing actors before a camera. Emphasis on developing techniques to immediately enhance communication between director and actor on the set in order to maintain continuity from shot to shot.
- 431. Introduction to Film and Television Screenwriting. (4)** Lecture, three hours. Limited to graduate film and television students. Introductory course in problems of film and television screenwriting.
- 433. Writing the Short Screenplay. (4)** Lecture, three hours. Limited to and required of first-year M.F.A. production program students. Conception, development, and writing of a six-minute dramatic film script to be produced in courses 410A, 410B, 410C. Letter grading.
- 434. Advanced Screenwriting. (8)** Discussion, three hours. Requisite: course 130A. Advanced problems in writing of original film and television screenplays. May be repeated twice for credit. Letter grading.
- 435. Advanced Writing for Short Film and Television Screenplays. (4)** Discussion, three hours. Requisite: course 410C. Limited to graduate film and television students. Conception, development, and writing of dramatic film script to be produced as an advanced or thesis project. Letter grading.
- 437. Nontheatrical Writing for Film and Television. (4)** Discussion, three hours. Limited to graduate film and television students. Advanced problems in the field of documentary and special feature programs, with emphasis on research and preproduction. May be repeated for a maximum of 16 units.
- 451. Advanced Design for Film and Television. (4)** Laboratory, to be arranged. Limited to graduate film and television students. Advanced study and practice of techniques and methods of design for motion pictures. Art direction for advanced workshop productions. May be repeated for a maximum of 12 units.
- 452A. Film and Television Sound Recording. (4)** Lecture, three hours; laboratory, four hours. Limited to graduate film and television students. Principles and practices of film and television sound recording, including supervised exercises.
- 452B. Music Recording Workshop. (4)** Lecture, four hours; laboratory, eight hours. Supervised exercises in studio music recording techniques, with emphasis on special requirements for motion pictures and television.
- 452C. Digital Audio Postproduction. (4)** (Formerly numbered 452C.) Lecture, three hours; laboratory, three hours. Limited to departmental majors. Through discussion, demonstrations, and laboratory assignments, exploration of digital audio tools and procedures available to today's filmmakers. Coverage of many technical, equipment, and software step-by-step, with emphasis on creative process. Concurrently scheduled with course C152C. Letter grading.
- 453. Postproduction Sound Design. (2 to 4)** Lecture, three hours. Designed to give film students insight into world of postproduction sound and to provide knowledge and tools necessary to complete postwork on their projects. Exploration of all areas of postproduction sound design from editing to final mixing. How to effectively use sound design to enhance storytelling capability of films, evaluate music choices, pick composer, music edit, create sound design to enhance story points, discover design opportunities, and select right sound effects. How to edit dialogue, prep for Automatic Dialogue Replacement and Foley sessions, and supervise final sound mix. Screening of numerous film clips to provide examples of postsound choices that demonstrate effective use of sound design. S/U or letter grading.
- 454A. Advanced Film Editing. (4)** Lecture, three hours; laboratory, to be arranged. Preparation: submission of rough cut and/or copy of screenplay. Limited to film and television thesis and advanced project students in postproduction phase of thesis or advanced project. Organization and operation of postproduction process. Letter grading.
- 454B. Advanced Film Editing. (4)** Lecture, three hours; laboratory, one hour. Preparation: submission of rough cut of existing project or proposal to edit work of another director. Requisite: course 154. Limited to film and television majors in postproduction phase with advanced knowledge of organization and operation of postproduction process. Students may also propose to edit significant scene given to them by instructor. Concurrently scheduled with course C154B. Letter grading.
- 454C. Advanced Film Editing: Postproduction Pathways. (2 to 4)** Lecture, three hours; laboratory, two hours. Limited to departmental majors. Through discussions, demonstrations, outside speakers, and laboratory assignments, demystification of ever-changing world of postproduction. Students plan, schedule, and budget their postproduction pathway in preproduction. May be repeated once for credit. Letter grading.
- 455A-C455B. Music in Film: Another Way to Tell Stories. (4-4)** Lecture, three hours. Course C455A is requisite to C455B. Exploration of concepts and issues that drive creation and use of music in film. Through lecture/discussion and practical assignments, examination of deep collaboration between filmmaker and composer. Viewing of noteworthy examples and following of collaboration of filmmakers with composers, with weekly sessions dedicated to temping, creation and development of new scores, studio visits, and cre-

ative/conceptual dialogue between musician and filmmaker. Preparation of film ready for temping by end of first quarter and ready for scoring at beginning of second quarter. Concurrently scheduled with courses C149A-C149B. Letter grading.

459A-459B. Directing for Film and Television. (4-4) Lecture, three hours. Limited to graduate film and television students. Analysis and exploration, with specific scenes, of differences and many similarities in directorial approach to same literary material in theater, film, and television.

464A-464B. Advanced Film Directing. (8-8) Hours to be arranged. Limited to graduate film and television students. Special problems in direction of fictional and documentary films.

465. Narrative Television Workshop. (8) Laboratory, eight hours. Supervised exercises in television multi-camera direction, with emphasis on creative use of composition and sound, and communication with those in front of and behind the camera. Letter grading.

466A-466B. Advanced Professional Video Workshops. (8-8) Lecture, three hours; laboratory, to be arranged. Requisites: courses 405, 410A, 410B, 410C, 423A. Limited to graduate film and television students. Hands-on problems in working with various interrelated disciplines in a professional production experience, including interaction with students of design and acting from Department of Theater.

C468. Creative Location Film Production. (8) Lecture, four hours; discussion, four hours; laboratory, to be arranged. Limited to directing or producer's program students. Problems of location, production, directing, and cinematography in various "real-life" practical locations. Practical application of solving problems and communication within limitations of production experience. Concurrently scheduled with course C168. Letter grading.

C470A. Introduction to Digital Effects. (4) Lecture, three hours; laboratory, to be arranged. Introductory study of digital effects production, with specific focus on motion graphics, compositing, effects processing, and title sequences. Concurrently scheduled with course C170A. Letter grading.

472. Commercials. (4) Lecture, four hours. Limited to M.F.A. students. Designed to give students opportunity to explore one very specific kind of filmmaking. Through exploration of advertising, students gain knowledge about what kind of work is salable in American and foreign markets and how to work within distinct confines of commercial genre. Letter grading.

475. Film I. (8) Discussion, three hours; laboratory, to be arranged. Designed for graduate students. Study of basic techniques of film production, including preproduction planning and production of a group short film.

476. Video I. (8) Discussion, three hours; laboratory, to be arranged. Designed for graduate students. Study of basic techniques of television and video production, including completion of one or more projects.

478. Video II. (8) Discussion, three hours; laboratory, to be arranged. Requisites: courses 185, and 405 or 476. Designed for graduate students. Group experience in video production with each member rotating on crew work in production of individual or collective projects.

480. Timing for Animation. (4) Lecture, three hours; laboratory, three hours. Process of animation timing through lectures and assignments. Letter grading.

482A-482B. Advanced Animation Workshops. (4 or 8 each) Lecture, three hours; laboratory, to be arranged. Requisites: courses 181A, 181B, 181C. Advanced organization and integration of various creative arts used in animation, resulting in production of a complete animated film. May be repeated for a maximum of 16 units.

483A-483B-483C. Advanced Computer Animation. (4 to 8 each) Lecture, six hours; laboratory, four hours. Requisites: courses 181A, 181C, 482A. Recommended: course 181B. Course 483A is requisite to 483B, which is requisite to 483C. Creation and production of complete and original advanced computer animated film. Letter grading.

484A-484B. Visual Thinking and Organization for Animation. (4-4) Lecture, six hours; laboratory, four hours. Course 484A is requisite to 484B. Systematic approach to analyzing and communicating two-dimensional and three-dimensional form and applying traditional compositional approaches to animation. May be repeated for maximum of 16 units. Letter grading.

485. Legal Issues in Animation. (4) Lecture, three hours; laboratory, three hours. Examination of legal issues in animation, including copyright, contracts, constitutional issues in animation, competing rights, employer/employee relationships, and representation in animation. S/U or letter grading.

486. Directed Individual Study: Preparation to Advancement to Candidacy for M.F.A. in Production. (2 to 4) Preparation for thesis production, four to eight hours. Limited to M.F.A. production program students. Specialized development and organization of proposed thesis project prior to advancement to candidacy. Should be taken term before student plans to advance to candidacy.

487. Directed Individual Study: Postproduction Laboratory. (4) Laboratory, eight hours. Limited to M.F.A. production program students. Completion of projects in final stages of postproduction. May not be repeated.

488A. Interactive Animation. (4 to 8) Lecture, six hours; laboratory, to be arranged. Requisites: courses 181A, 181C, 489A. Organization and integration of various creative arts used in animation and interactive media to form complete study of a selective interactive animation project. May be repeated for a maximum of 16 units.

488B. Advanced Interactive Animation. (4 to 8) Lecture, six hours; laboratory, to be arranged. Requisite: course 488A. Organization and integration of various creative arts used in animation and interactive animation to form completed project of a selected interactive topic. May be repeated for a maximum of 16 units.

489A. Computer Animation in Film and Video. (4 to 8) Lecture, six hours; laboratory, four to eight hours; other, to be arranged. Preparation: completed animated film. Requisites: courses 181A, 181C. Instruction in and supervised production of computer animation. May be repeated for maximum of 16 units. Letter grading.

489B. Production in Computer Animation. (4 to 8) Lecture, six hours; laboratory, four to eight hours. Requisite: course 489A. Instruction in creation, preparation, and production of a complete and original computer animation film or tape. May be repeated for a maximum of 16 units.

495A. Practice of Teaching Film and Television. (2) Seminar, three hours. Required of all teaching assistants and associates in critical studies program. Orientation and preparation of graduate students who have responsibility to assist in teaching undergraduate courses in department; discussion of problems common to teaching experience. S/U grading.

495B. Teaching with Technology in Film and Media Studies. (2) Seminar, three hours. How to use appropriate technology to become more effective teaching assistants. Pedagogical impact of tools, including course management software, presentation technologies, and Internet. Discussion of technological resources available on campus. Use of unfamiliar tools to gain confidence in ability to incorporate new technologies in teaching. S/U grading.

496. Practice of Teaching Film and Television. (2) Discussion. Required once of all teaching assistants and associates in department. Orientation and preparation of graduate students who have responsibility to assist in teaching undergraduate courses in department; discussion of problems common to teaching experience. May not be applied toward M.A., M.F.A., or Ph.D. May be repeated. S/U grading.

498. Professional Internship in Film and Television. (4, 8, or 12) Full- or part-time at a studio or on a professional project. Designed for M.F.A. program advanced students. Internship at various film, television, or theater facilities accentuating creative contribution,

organization, and work of professionals in their various specialties. Given only when projects can be scheduled.

501. Cooperative Program. (2 to 8) Preparation: consent of graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596A. Directed Individual Studies: Research. (2 to 12) Hours to be arranged. Limited to graduate students. May be repeated with consent of instructor.

596B. Directed Individual Studies: Writing. (2 to 12) Hours to be arranged. Limited to graduate students. May be repeated with consent of instructor.

596C. Directed Individual Studies: Directing. (2 to 12) Hours to be arranged. Limited to graduate students. May be repeated with consent of instructor.

596D. Directed Individual Studies: Design. (2 to 12) Hours to be arranged. Limited to graduate students. May be repeated with consent of instructor.

596E. Directed Individual Studies: Acting. (2 to 12) Hours to be arranged. Limited to graduate students. May be repeated with consent of instructor.

596F. Directed Individual Studies: Production. (2 to 12) Hours to be arranged. Limited to graduate students. May be repeated with consent of instructor.

597. Preparation for Ph.D. Qualifying Examinations in Film and Television. (2 to 12) Hours to be arranged. May be taken for a maximum of 12 units. S/U grading.

598. M.A. Thesis in Film and Television. (2 to 12) Hours to be arranged. Preparation: advancement to M.A. candidacy. Research and writing for M.A. thesis. May be taken for a maximum of 12 units. S/U grading.

599. Ph.D. Dissertation in Film and Television. (2 to 12) Hours to be arranged. Preparation: advancement to Ph.D. candidacy. Research and writing for Ph.D. dissertation. May be repeated. S/U grading.

FOREIGN LITERATURE IN TRANSLATION

Scope and Objectives

The following courses offered in the departments of language and literature do not require reading knowledge of any foreign language.

Foreign Literature in Translation

Course List

Afrikaans (Germanic Languages)

40. From Oppressed to Oppressor and Beyond: Literature in Afrikaans from Preapartheid to Postapartheid Era in English Translation

Ancient Near East (Near Eastern Languages)

150A-150B-150C. Survey of Ancient Near Eastern Literatures in English

Arabic (Near Eastern Languages)

150. Classical Arabic Literature in English
M151. Modern Arabic Literature in English

Armenian (Near Eastern Languages)

150A-150B. Survey of Armenian Literature in English
C152. Modern Armenian Drama as Vehicle for Social Critique
C153. Art, Politics, and Nationalism in Modern Armenian Literature

Asian (Asian Languages)

151. Buddhist Literature in Translation

Bulgarian (Slavic Languages)

154. Survey of Bulgarian Literature

Central and East European Studies

126. Coldwar Central European Culture

Chinese (Asian Languages)

C150A. Lyrical Traditions

150B. Traditional Narrative and Drama

151. Chinese Literature in Translation: Modern Literature

152. Topics in Contemporary Chinese Literature and Culture

M153. Chinese Immigrant Literature and Film

Classics

40W. Reading Greek Literature: Writing-Intensive

41W. Reading Roman Literature: Writing-Intensive

137. Ancient Lives: Art of Biography

140. Topics in History of Greek Literature

141. Topics in History of Latin Literature

142. Ancient Epic

143A. Ancient Tragedy

143B. Ancient Comedy

144. Topical Studies in Ancient Culture

150A. Female in Greek Literature and Culture

150B. Female in Roman Literature and Culture

162. Classical Myth in Literature

163. Ovid and Consequences

Comparative Literature

All undergraduate courses

Czech (Slavic Languages)

155. Survey of Czech Literature from Middle Ages to Present

Dutch (Germanic Languages)

10. Contemporary Dutch Society and Culture: Beyond Rembrandt, Cheese, and Wooden Shoes

113. Modern Dutch and Flemish Literature in Translation

English

108A-108B. English Bible as Literature

108C. English Bible as Literature: Special Topics

111A. Oral Tradition

111D. Celtic Mythology

111E. Survey of Medieval Celtic Literature

111F. Celtic Folklore

French (French and Francophone Studies)

112. Medieval Foundations of European Civilization

160. Francophone Cultures in English

161. French and Francophone Theater in Translation

164. French and Francophone Novel in Translation

166. French and Francophone Autobiography in Translation

167. French and Francophone Intellectual History in Translation

169. Paris: Study of French Capital in Translation

172. Francophone Cinema and Literature in Translation

191A. Variable Topics Research Seminars in Translation

German (Germanic Languages)

50A-50B. Great Works of German Literature in Translation

55. City as Text: German Exile Culture in Los Angeles

56. Figures Who Changed World

57. Hollywood and Germany

58. Knights and Ladies, Sex and Power at Medieval Court

59. Holocaust in Film and Literature

60W. War

61A-61D. Modern Metropolis

62W. Man and Machine

M70. Origin of Language

100. German History and Culture before 1500

101. German History and Culture, 1500 to 1914

102. War, Politics, Art

103, 104. German Film in Cultural Context

M105. Tristan, Isolde, and History of Heterosexuality

106. Bargaining with Devil

M107. Love and Sex in German Literary Tradition

108. Nietzsche and Critique of Western Culture

109. Jewish Question and German Thought

110. Special Topics in Modern Literature and Culture

111. Thomas Mann, Hesse, Böll, and Grass: German Nobel Prize Winners in English

112. Feminist Issues in German Literature and Culture

113. German Folklore

114. Fairy Tales and Fantastic

117. German Exile Culture in Los Angeles

Hungarian (Slavic Languages)

121. Survey of Hungarian Literature in Translation

Iranian (Near Eastern Languages)

150A-150B. Survey of Persian Literature in English

Italian

42A-42B. Italy through the Ages in English

50A-50B. Masterpieces of Italian Literature in English

102A-102B-102C. Italian Cultural Experience in English

110. Dante in English

121. Literature and Film

122. Italian Theater

140. Italian Novella from Boccaccio to Basile in Translation

150. Modern Fiction in Translation

M158. Women in Italian Culture

230A-230B. Folk Tradition in Italian Literature

260A. Alternative Perspectives in Italian Culture: Studies of Folk Tradition in Italian Literature

Japanese (Asian Languages)

C150. Topics in Japanese Literature and Philosophy

151. Japanese Literature in Translation: Modern

154. Postwar Japanese Culture through Literature

M156. Literature and Technology

Jewish Studies (Near Eastern Languages)

75. Modern Hebrew Literature Made into Film

M150A-150B. Hebrew Literature in English

M151A-151B. Modern Jewish Literature in English

Korean (Asian Languages)

150. Korean Literature in Translation: Classical

151. Korean Literature in Translation: Modern

Polish (Slavic Languages)

152A-152B-152C. Survey of Polish Literature

Portuguese (Spanish and Portuguese)

40A-40B. Portuguese, Brazilian, and African Literature in Translation

46. Brazilian Culture and Civilization

Romanian (Slavic Languages)

152. Survey of Romanian Literature

Russian (Slavic Languages)

25, 25W. Russian Novel in Translation

M118. History of Russia, Origins to Rise of Muscovy

119. Golden Age and Great Realists

120. Literature and Revolution

124C-124T. Studies in Russian Literature

125. Russian Novel in Its European Setting

126. Survey of Russian Drama

M127. Women in Russian Literature

128. Russian Science Fiction

C170. Russian Folklore

Scandinavian

40. Heroic Journey in Northern Myth, Legend, and Epic

50, 50W. Introduction to Scandinavian Literatures and Cultures

C131. Introduction to Viking Age

C133A. Saga

138. Vikings

C141A. Theory of Scandinavian Novel

CM144A. Voices of Women in Nordic Literature

C145A. Henrik Ibsen

C145B. Knut Hamsun

C146A. August Strindberg

147A. Hans Christian Andersen

C147B. Søren Kierkegaard

152. Backgrounds of Scandinavian Literature

155. Modern Breakthrough

156. Scandinavian Literature of 20th Century

157. Contemporary Nordic Literature

161. Introduction to Nordic Cinema

163A. Introduction to Danish Cinema

166A. Ingmar Bergman

166C. Carl Dreyer

C171. Introduction to Scandinavian Folklore

C174A. Minority Cultures in Scandinavia

174B. Queer Scandinavia

C180. Literature and Scandinavian Society

Serbian/Croatian (Slavic Languages)

154. South Slavic Literature

Slavic (Slavic Languages)

125. Interwar Central European Prose

South Asian (Asian Languages)

150. Classical Indian Literature in Translation

Southeast Asian (Asian Languages)

130. Topics in Southeast Asian Literature

Spanish (Spanish and Portuguese)

60A-60B-60C. Hispanic Literatures in Translation

Ukrainian (Slavic Languages)

152. Ukrainian Literature

Yiddish (Germanic Languages)

121A. 20th-Century Yiddish Poetry in English Translation

121B. 20th-Century Yiddish Prose and Drama in English Translation

121C. Special Topics in Yiddish Literature in English Translation

FRENCH AND FRANCOPHONE STUDIES

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Kimberly Jansma, Ph.D.

Lecturer

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Scope and Objectives

The Department of French and Francophone Studies is a major West Coast center for the study of French. In recent decades French critical thought has maintained a dominant position in the Western world. The department seeks to give its students not only a background in the various fields of French and Francophone studies, but also opportunity to relate literary, linguistic, and cultural study to examination of the critical intellectual questions of our time.

The undergraduate lower division program is designed to provide practical competence in French after one year and thorough basic knowledge of the language after two years.

The undergraduate upper division program is chiefly devoted to perfecting linguistic skills and to the study of French and Francophone culture and literature. Courses in linguistics and business French are also offered. Students graduating with a Bachelor of Arts in French should be fully fluent in French and possess a thorough background in French and Francophone literature and culture. Both Bachelor of Arts degrees lead to graduate studies in French.

The graduate program offers both M.A. and Ph.D. degrees and comprises training in the various fields of French and Francophone culture, literature, and thought, as well as in literary criticism, analysis, and theory. A number of courses in linguistics and stylistics are also offered.

Undergraduate Study

If students have taken French elsewhere, they must take a placement test administered by the department. Depending on the results of the placement test or with recommendation of an instructor, they may be permitted to enroll in a course of study at a more advanced level.

Requisites to all upper division courses taken in partial fulfillment of the French majors are French 6, 12, or equivalent. Courses 105 through 109 are not sequential and may be taken in any order, provided the requisites for each course are fulfilled.

No credit is allowed for completing a less advanced course after successful completion of a more advanced course in French grammar and/or composition.

French B.A.

Preparation for the Major

Required: French 1, 2, 3, 4, 5, 6, 12, or equivalent. Students normally take course 6 before undertaking course 12. Students who receive a grade of A in course 5 may enroll in course 12 concurrently with course 6, with consent of the instructor.

Transfer Students

Transfer applicants to the French major with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of French and one French literature course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Two plans are offered by the department:

Plan I: French/Francophone Studies in Literature and Culture

Required: French 100, 101, two courses from 114A, 114B, 114C, and seven 4-unit courses in French and Francophone literature and/or culture selected from upper division offerings in the department in language, civilization, literature, or the arts. One upper division elective course from outside the department may be substituted in the major program with consent of the undergraduate adviser. Each course must be taken for a letter grade.

Plan II: Interdisciplinary French/Francophone Studies

Required: French 100, 101, one course from 114A, 114B, or 114C, four upper division elective courses in French and Francophone studies, and four upper division elective courses in fields relevant to French and Francophone studies to be selected from outside the department in consultation with the undergraduate adviser. Each course must be taken for a letter grade.

Plan II, with emphasis on French and Francophone culture, is a core program in French allowing for individual selection of relevant courses in related fields such as humanities, social sciences, women's studies, and linguistics.

It is strongly advised that students who intend to pursue advanced degrees begin preparation for the language requirements at the undergraduate level.

If students' knowledge of French exceeds the preparation usually received in courses preparing for the major and if they demonstrate the requisite attainment in French 100 or 101, they may substitute for those courses in grammar and composition an equivalent number of upper division courses in the French and Francophone Studies Department in consultation with

an adviser. All prospective French majors who are native or quasi-native speakers of French must see the undergraduate adviser before beginning upper division work in the major.

All majors must complete a minimum of nine courses of appropriate upper division work in the UCLA French and Francophone Studies Department. Freshmen and sophomores may take up to two courses taught in English, selected from French 164 through 167, in fulfillment of major requirements (if taken in the junior or senior year, these courses count as electives). A maximum of 8 units of course 199 may be applied toward the elective requirements for the major if approved in advance by the undergraduate adviser. Students must maintain a C average in upper division major courses in order to remain in the French major.

Coursework taken on a Passed/Not Passed basis is not acceptable in any area of the major program.

It is recommended that students intending to major in French consult the undergraduate adviser before enrolling in upper division courses.

French and Linguistics B.A.

Preparation for the Major

Required: French 1, 2, 3, 4, 5, 6, 12, or equivalent, Linguistics 20, completion of the sixth term of one other foreign language or the third term in each of two other foreign languages. Students normally take course 6 before undertaking course 12. Students who receive a grade of A in course 5 may enroll in course 12 concurrently with course 6, with consent of the instructor.

Transfer Students

Transfer applicants to the French and Linguistics major with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of French, one French literature course, and one introduction to linguistics course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: French 100, 101, 104, one course from 114A, 114B, or 114C, two courses from 105, 107, 108A, 108B, 109, 110, one upper division French elective course, and Linguistics 103, 110, 120A, 120B. Each course must be taken for a letter grade.

It is strongly advised that students who intend to pursue advanced degrees begin preparation for the language requirements at the undergraduate level.

If students' knowledge of French exceeds the preparation usually received in courses preparing for the major and if they demonstrate the requisite attainment in French 100 or 101, they may substitute for those courses in grammar and composition an equivalent number of upper division courses in the French and Franco-

phone Studies Department in consultation with an adviser. All prospective French and Linguistics majors who are native or quasi-native speakers of French must see the undergraduate adviser before beginning upper division work in the major.

All majors must complete a minimum of nine courses of appropriate upper division work in the UCLA French and Francophone Studies Department. Freshmen and sophomores may take up to two courses taught in English, selected from French 164 through 167, in fulfillment of major requirements (if taken in the junior or senior year, these courses count as electives). A maximum of 8 units of course 199 may be applied toward the elective requirements for the major if approved in advance by the undergraduate adviser. Students must maintain a C average in upper division major courses in order to remain in the French and Linguistics major.

Coursework taken on a Passed/Not Passed basis is not acceptable in any area of the major program.

It is recommended that students intending to major in French and Linguistics consult the undergraduate adviser before enrolling in upper division courses.

Honors Program

The department encourages those students in the French majors with initiative and independence of mind who desire an enriched individualized course of study to apply for the honors program.

The honors program is designed for French majors who have fulfilled their lower division requirements and have a 3.5 departmental grade-point average. Students whose GPA falls between 3.3 and 3.5 should submit a composition from an advanced language or literature course to the honors committee. If the work submitted meets with approval, students are admitted to the program.

To graduate with departmental honors, students must complete a minimum of two honors projects in the context of nonhonors upper division courses (French 115 and above) taken for honors credit. They must do an honors project (a research paper of 12 to 15 pages) in addition to the regular course requirements. An honors contract must be signed before the end of the third week of the term. After completing the project, students fill out a completion form.

On the basis of their coursework and field of interest, students are expected to formulate a research topic they wish to pursue in greater depth. They take course 198 where they receive regular personal supervision from a faculty member in the research, methodology, and writing of their approximately 30- to 35-page honors thesis (honors projects and the honors thesis are not to be confused).

Students may begin the honors program toward the end of their junior year or during their senior year. Students are allowed to enroll in

graduate courses with the consent of the instructor but cannot use those courses to replace an honors project. Departmental honors are recorded on the final transcript if students fulfill all requirements for the program. They may submit their final honors thesis for the departmental prize.

French Minor

To enter the French minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Courses (8 units): French 6 or equivalent and one course from 12, 14, 41, or 60.

Required Upper Division Courses (20 units): French 100 or 101, and four additional departmental courses in language, culture, or literature to be selected in consultation with an undergraduate counselor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of French and Francophone Studies offers Master of Arts (M.A.), Candidate in Philosophy (C.Phil.), and Doctor of Philosophy (Ph.D.) degrees in French and Francophone Studies.

French

Lower Division Courses

1. Elementary French. (4) Lecture, five hours. P/NP or letter grading.

1G. Elementary French for Graduate Students. (3) Preparation for GSFLT or other language examinations. A passing grade does not imply satisfaction of language requirements. S/U grading.

2. Elementary French. (4) Lecture, five hours. Enforced requisite: course 1 with grade of C– or better. P/NP or letter grading.

3. Elementary French. (4) Lecture, five hours. Enforced requisite: course 2 with grade of C– or better. P/NP or letter grading.

4. Intermediate French. (4) Lecture, four hours. Enforced requisite: course 3 with grade of C– or better. P/NP or letter grading.

5. Intermediate French. (4) Lecture, four hours. Enforced requisite: course 4 with grade of C– or better. P/NP or letter grading.

6. Intermediate French. (4) Enforced requisite: course 5 with grade of C– or better. P/NP or letter grading.

8. Intensive First-Year French. (12) Lecture, 15 hours. All-in-French intensive language program equivalent to first year of college French and designed

to develop basic language skills. Additional work in language and media laboratory required. Offered in summer only. P/NP or letter grading.

9. Intensive Second-Year French. (8) Lecture, 10 hours; media laboratory, three hours. Enforced requisite: course 3. Intensive course equivalent to first two terms of intermediate French and designed to improve proficiency in reading, writing, and speaking. Offered in summer only. P/NP or letter grading.

10A-10D. French Conversation. (2 each) Discussion, three hours. Enforced requisite: course 3 with grade of B or better. P/NP or letter grading.

12. Introduction to Study of French and Francophone Literature. (5) Lecture, two hours; discussion, one hour. Enforced requisite: course 6. Principles of literary analysis as applied to selected texts in poetry, theater, and prose by French and Francophone writers. P/NP or letter grading.

14. Introduction to French Culture and Civilization in English. (5) Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course 14W. Study of contemporary French institutions and issues in cultural, political, and socioeconomic realms. P/NP or letter grading.

14W. Introduction to French Culture and Civilization in English. (5) Lecture, three hours; discussion, one hour. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 14. Study of contemporary French institutions and issues in cultural, political, and socioeconomic realms. Satisfies Writing II requirement. Letter grading.

41. French Cinema and Culture. (5) Lecture/screenings, five hours; discussion, one hour. Introduction to French culture and literature through study of films of cultural and literary significance. P/NP or letter grading.

60. French and Francophone Novel. (5) Lecture, three hours; discussion, one hour. Study of literary masterpieces produced by writers from France and Francophone world (Canada, Africa, Caribbean, etc.) from 17th to early 21st century. P/NP or letter grading.

Upper Division Courses

100. Written Expression: Techniques of Description and Narration. (5) Lecture, three hours. Requisite: course 6. Writing assignments follow close analysis of relevant texts, film, and related grammatical structures. Examination of vocabulary and structures associated with descriptive writing and French verb tense system required for narration. P/NP or letter grading.

101. Advanced Expository Writing: Techniques of Argumentation. (4) (Formerly numbered 102.) Lecture, three hours. Requisite: course 100. Study of rhetorical devices and revision of related grammatical structures. Writing assignments follow analysis of relevant texts. P/NP or letter grading.

104. Theory and Correction of Diction. (4) (Formerly numbered 15.) Lecture, three hours. Enforced requisite: course 6. Study of individual sounds (vowels, consonants, and semi-vowels), including rhythm, intonation, and phrasing, and of learning sound—spelling correspondences to help sight read accurately. Thorough study of symbols of International Phonetic Alphabet (IPA) to give students tools to work on pronunciation systematically. Standard French serves as model, with examination of pronunciation changes and various dialects that are spoken in Francophone world to improve listening comprehension and pronunciation. P/NP or letter grading.

105. Structure of French. (4) Lecture, three hours. Prior background in linguistics not required. Introduction to linguistic analysis of French in areas of phonology, morphology, syntax, and language variation. P/NP or letter grading.

107. Advanced Oral Expression. (4) Lecture, three hours. Requisite: course 6. Discussion and analysis of current events and sociocultural issues; techniques of argumentation. P/NP or letter grading.

108A-108B. Advanced Practical Translation. (4-4)

Lecture, three hours. Requisites: courses 100, 101. P/NP or letter grading. **108A.** Translation of journalistic texts, including biography and interview, formal and informal reporting, advertising and idiomatic language. Work in techniques of translation. **108B.** Translation of literary and sociocultural texts, including editorials, polemical issues, film subtitles. Comparative stylistics of translation.

109. Language and Communication in Business French. (4) Lecture, three hours. Requisite: course 6. Oral and written communication in commercial arena, including transactions, banking, education, job search, correspondence, and management. P/NP or letter grading.

110. Culture of Business in France. (4) Lecture, three hours. Requisite: course 100 or 109. French culture in consumer world. Analysis of mentalities, practices and customs, marketing, and advertising strategies. Discussion of changes brought about by European Union and globalization. P/NP or letter grading.

112. Medieval Foundations of European Civilization. (4) Lecture, three hours; discussion/film screenings, two hours. Medieval texts, culture, social structure, and political history as they lay bases of European modernity. P/NP or letter grading.

114A-114B-114C. Survey of French Literature. (5-5-5) Lecture, three hours. Requisite: course 12. Survey of French literature from the medieval period through the 20th century. P/NP or letter grading:

114A. Medieval and Renaissance Literature. (5) Lecture, three hours. Requisite: course 12. Masterpieces of medieval and Renaissance literature, including examples of epic (*La Chanson de Roland*), romance (*Chrétien de Troyes' Yvain*), and Renaissance prose and poetry (including Marot, Du Bellay, Ronsard, Rabelais, Marguerite de Navarre, and Montaigne). P/NP or letter grading.

114B. 17th and 18th Centuries. (5) Lecture, three hours. Requisite: course 12. Study of selections from major works of classicism and the Enlightenment, including those by Racine, Pascal, La Fayette, La Fontaine, Laclous, Diderot, Voltaire, and Rousseau. P/NP or letter grading.

114C. 19th and 20th Centuries. (5) Lecture, three hours. Requisite: course 12. Study of major literary movements and writers of the period, including works by Hugo, Baudelaire, Balzac, Stendhal, Flaubert, Zola, Gide, Proust, Sartre, Robbe-Grillet, and Duras. P/NP or letter grading.

115. Studies in Medieval French Culture and Literature. (4) Lecture, three hours. Taught in French. Study of medieval French culture and literature, including lyric poetry and narrative romance, history of medieval warfare, comedy, and class structures. May be repeated for credit with topic change. P/NP or letter grading.

116. Studies in Renaissance French Culture and Literature. (4) Lecture, three hours. Taught in French. Study of Renaissance French culture and literature, including the *Pléiade* and 16th-century poetry, linguistic and poetic revolution, novel and early prose, and late French humanism. May be repeated for credit with topic change. P/NP or letter grading.

117. Studies in 17th-Century French Culture and Literature. (4) Lecture, three hours. Taught in French. Study of 17th-century French culture and literature, including theater, philosophers, moralists, novelists, and cultural, political, social, religious, and courtly aspects. May be repeated for credit with topic change. P/NP or letter grading.

118. Studies in 18th-Century French Culture and Literature. (4) Lecture, three hours. Taught in French. Study of 18th-century French culture and literature, including satire, novel, theater, philosophers, and theoretical writings. May be repeated for credit with topic change. P/NP or letter grading.

119. Studies in 19th-Century French Culture and Literature. (4) Lecture, three hours. Taught in French. Study of 19th-century French culture and literature, including Romanticism, generation of 1848, naturalism

and symbolism, and genres and trends from 1885 through World War I. May be repeated for credit with topic change. P/NP or letter grading.

120. Studies in 20th-Century French Culture and Literature. (4) Lecture, three hours. Taught in French. Study of 20th-century French culture and literature, including early 20th-century writers, surrealism, literature from 1915 to 1945, post-World War II literature, existentialism, new novel, theater, and poetry. May be repeated for credit with topic change. P/NP or letter grading.

121. Studies in Francophone Cultures and Literatures. (4) Lecture, three hours. Taught in French. Study of Francophone cultures and literatures, including works by poets, playwrights, and novelists from Caribbean, North Africa, Quebec, and sub-Saharan Africa, immigrant narratives, and colonialism and postcolonial studies. May be repeated for credit with topic change. P/NP or letter grading.

130. Contemporary French and Francophone Cultures. (4) Lecture, three hours. Requisite: course 12 or 100. Taught in French. Study of contemporary France and Francophone world (Africa, Asia, Caribbean, Quebec), government, institutions, and cultural, economic, social, and political issues. May be repeated for credit with topic change. Letter grading.

131. French and Francophone Theater. (4) Lecture, three hours. Taught in French. Through plays of 20th century, analysis of struggles of individuals and social groups in contexts that are historical, political, philosophical (existentialism, absurd), and cultural (colonialism and conformism). P/NP or letter grading.

132. French and Francophone Poetry. (4) Lecture, three hours. Taught in French. Study of history of French and Francophone poetry and readings of major poets from 16th to 20th century. P/NP or letter grading.

133. French and Francophone Short Story. (4) Lecture, three hours. Taught in French. Survey of short fiction forms in France and Francophone world. P/NP or letter grading.

134. French and Francophone Novel. (4) Lecture, three hours. Taught in French. Study of French and Francophone novels and readings of major novelists. May be repeated for credit with topic change. P/NP or letter grading.

136. French and Francophone Autobiography. (4) Lecture, three hours. Taught in French. Rhetoric of genre and its relation to broad questions of identity, gender, race, and class. May be repeated for credit with topic change. P/NP or letter grading.

137. French and Francophone Intellectual History. (4) Lecture, three hours. Requisite: course 12 or 100. Taught in French. Exploration of themes that address particular problem of French literature, civilization, or ideas. May be repeated for credit with topic change. P/NP or letter grading.

138. Contemporary French Theory. (4) Lecture, three hours. Requisite: course 12 or 100. Taught in French. Study of French theorists (Barthes, Baudrillard, Cixous, Derrida, Foucault, Irigaray) and major concepts in contemporary French thought, with attention to its influence on and application to literary and nonliterary texts. May be repeated for credit with topic change. P/NP or letter grading.

139. Paris: Study of French Capital. (4) Lecture, three hours. Requisite: course 12 or 100. Taught in French. Textual and visual exploration of historical and imaginary (re)constructions of Paris, beginning with its earliest history and gradual formation of this great urban complex in maps from Renaissance to 20th century. Study of city's streets and quarters, traffic and transportation, multiple layers of past, present, and future, and *flâneurs* and insurrectionists through wide range of literary and critical texts. Readings cover mainly 19th and 20th centuries—Honoré de Balzac, Charles Baudelaire, Emile Zola, Marcel Proust, Louis-Ferdinand Céline, and others. P/NP or letter grading.

M140. Women's Studies in French Literature. (4) (Same as Women's Studies M140.) Lecture, three hours. Exploration of a selected aspect of the situation of women in French literature as author, character, symbol, etc. P/NP or letter grading.

141. French Cinema. (4) Lecture, three hours. Study of French cinema and cinematographers in generic, thematic, and sociocultural aspects. May be repeated for credit with topic change. P/NP or letter grading.

142. Francophone Cinema. (4) Lecture, three hours. Study of Francophone (Africa, Caribbean, postcolonial communities in France) cinema and cinematographers in generic, thematic, and sociocultural aspects. May be repeated for credit with topic change. P/NP or letter grading.

160. Francophone Cultures in English. (4) Lecture, three hours. Study of historical, anthropological, legal, literary, or filmic texts to provide students with broad view of some main issues in field of colonial and postcolonial Francophone studies. P/NP or letter grading.

161. French and Francophone Theater in Translation. (4) Lecture, three hours. Through plays of 20th century, analysis of struggles of individuals and social groups in contexts that are historical, political, philosophical (existentialism, absurd), and cultural (colonialism and conformism). May be repeated for credit with topic change. P/NP or letter grading.

164. French and Francophone Novel in Translation. (4) Lecture, three hours. Study of French novels. May be repeated for credit with topic change. P/NP or letter grading.

166. French and Francophone Autobiography in Translation. (4) Lecture, three hours. Rhetoric of genre and its relation to broad questions of identity, gender, race, and class. May be repeated for credit with topic change. P/NP or letter grading.

167. French and Francophone Intellectual History in Translation. (4) Lecture, three hours. Readings of French and Francophone writers, historians, and thinkers. May be repeated for credit with topic change. P/NP or letter grading.

169. Paris: Study of French Capital in Translation. (4) Lecture, three hours. Textual and visual exploration of historical and imaginary (re)constructions of Paris, beginning with its earliest history and gradual formation of this great urban complex in maps from Renaissance to the 20th century. Study of city's streets and quarters, traffic and transportation, multiple layers of past, present, and future, and *flâneurs* and insurrectionists through wide range of literary and critical texts. Readings cover mainly the 19th and 20th centuries—Victor Hugo, Charles Baudelaire, Jules Verne, Emile Zola, André Breton, Walter Benjamin, Roland Barthes, and others. P/NP or letter grading.

172. Francophone Cinema and Literature in Translation. (4) Lecture, three hours. Study of Francophone (Africa, Caribbean, postcolonial communities in France) cinema and cinematographers in generic, thematic, and sociocultural aspects. May be repeated for credit with topic change. P/NP or letter grading.

191A. Variable Topics Research Seminars in Translation. (4) (Formerly numbered 165.) Seminar, three hours. Research seminars on topics to be announced each term. Topics include major writers, genres, cultural movements, or theoretical practices. Reading, discussion, and development of culminating project. May be repeated for credit with consent of major adviser. P/NP or letter grading.

191B. Variable Topics Research Seminars. (4) (Formerly numbered 165.) Seminar, three hours. Taught in French. Research seminars on topics to be announced each term. Topics include major writers, genres, cultural movements, or theoretical practices. Reading, discussion, and development of culminating project. May be repeated for credit with consent of major adviser. P/NP or letter grading.

198. Honors Research in French. (4) Tutorial, three hours. Limited to junior/senior French majors with 3.5 departmental and 3.25 overall grade-point averages. Development and completion of honors thesis or

comprehensive research project under direct supervision of faculty member. May be repeated for credit. Individual contract required. Letter grading.

199. Directed Research or Senior Project in French. (2 to 4) Tutorial, three hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200. Contemporary French Theories. (4) Lecture, three hours. Introductory study of French structuralist and poststructuralist thought in literature, linguistics, psychoanalysis, anthropology, philosophy, and feminism, which may include texts by Althusser, Barthes, Deleuze, Derrida, Foucault, Genette, Irigaray, Kristeva, Lacan, Lyotard, and others. S/U or letter grading.

201. Techniques of Literary Analysis. (4) Lecture, three hours. Practice in close analysis of literary texts, including *explication de texte*. S/U or letter grading.

202. Cultural Studies. (4) Lecture, three hours. Introduction to theoretical approaches to popular and mass culture, and to postcolonial and Francophone cultures. Topics include emergent disciplines and theories such as sociology and structuralism, the city, revolution, avant-garde strategies, media, diaspora during postwar modernization, Algerian War, May 68, and beyond. Theorists include Barthes, de Certeau, Bourdieu, Baudrillard, Lyotard, Ross, Rey Chow, Virilio. S/U or letter grading.

203. Contemporary Francophone Literature. (4) Lecture, three hours. Study of Francophone African, Caribbean, Vietnamese, or Quebec literatures and cultures, with specific attention to issues of cultural contact, language, colonialism, anticolonialism, nationalism, resistance and dissidence, and postcolonial theory. S/U or letter grading.

204. Studies in Autobiography. (4) Lecture, three hours. Introduction to theories of autobiography and subjectivity, and to genre of autobiography in literatures in French across centuries. Topics include early modern approaches to self-writing, Rousseau and emergence of modern self, women's autobiography in France and Francophone world. Theorists may include Georges Gusdorf, Philippe Lejeune, Paul de Man, Jacques Derrida, Helene Cixous, Michel Foucault, Pierre Bourdieu, Toril Moi. S/U or letter grading.

205A-205B. Studies in Cinema and Literature. (4-4) Lecture, three hours. Discussion of selected topics in French and Francophone cinema and literature. S/U or letter grading.

206A-206B. Studies in Generative Anthropology. (4-4) Lecture, three hours. Discussion of principles of generative anthropology and their application to given set of literary, philosophical, and scientific texts and/or other cultural phenomena. S/U or letter grading.

207. Studies in History of Ideas. (4) Seminar, three hours. Particular problems in French literature and ideas. May be repeated for credit. S/U or letter grading.

208. Studies in Literary Criticism. (4) Seminar, three hours. Readings in literary criticism, theory, and literature from any period of French literature. May be repeated for credit. S/U or letter grading.

209. Studies in Literary Genre. (4) Seminar, three hours. Advanced research and study of literary genres such as poetry, drama, fiction, autobiography, or performance and of theory of these genres. S/U or letter grading.

M210. Paleography of Latin and Vernacular Manuscripts, 900 to 1500. (4) (Same as Classics M218, English M215, and History M218.) Lecture, three hours; discussion, two hours. Introduction to history of Latin and vernacular manuscript book from 900 to 1500 to (1) train students to make informed judgments with regard to place and date of origin, (2) provide training in accurate reading and transcription of later medieval scripts, and (3) examine manuscript book as witness to changing society that produced it.

Focus on relationship between Latin manuscripts and vernacular manuscripts with regard to their respective presentation of written texts. S/U or letter grading.

214. Problematics of Medieval Language and Literature. (4) Lecture, three hours. Introduction to Old French and problematics of medieval literature. S/U or letter grading.

215. Studies in Middle Ages. (4) Seminar, three hours. Examination of nature of cross-cultural, cross-linguistic, and cross-confessional exchange in medieval and early modern periods and France's role in it. S/U or letter grading.

216. Renaissance. (4) Lecture, three hours. French literature of the 16th century studied within historical, intellectual, and cultural contexts. Letter grading.

217. 17th Century. (4) Lecture, three hours. Readings in 17th-century literature studied within historical, cultural, and literary contexts. S/U or letter grading.

218. Enlightenment. (4) Lecture, three hours. Readings in 18th-century French literature and thought: novels, satires, plays, and other key Enlightenment *philosophies*. Letter grading.

219. 19th Century. (4) Lecture, three hours. Readings in 19th-century literature, covering development of novel, lyric poetry, and theater from Romantic period to *fin-de-siecle*. S/U or letter grading.

220. 20th Century. (4) Lecture, three hours. Overview, both historical and analytical, of 20th-century French literature set in context of several key critical topics that interrogate canonical interpretation. Letter grading.

M270. Seminar: Literary Theory. (5) (Same as Asian M251, Comparative Literature M294, English M270, German M270, Italian M270, Scandinavian M270, and Spanish M294.) Seminar, three hours. Advanced interdisciplinary seminar to explore philosophical, historical, and critical foundations of literary theory as well as current issues in literary and cultural studies. S/U or letter grading.

296. Research Methods and Writing. (2) Seminar, two hours. Advanced study of current topics in literary and cultural analysis and in critical theory. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

M299. Research Resources for European Studies. (2) (Same as German M299, Information Studies M299, Italian M299, Slavic M299, and Spanish M299.) Lecture, two hours. Essentials of library research strategy and effective searching in key print and online resources for European and Russian studies. Through combination of lecture, online demonstration, and hands-on activities in and outside class, students understand how to efficiently use library and databases. S/U grading.

370. Teaching French in Secondary School. (4) Lecture, three hours; discussion, one hour. Required of all candidates for general secondary instructional credential in French.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Teaching French at College Level. (4) Seminar, three hours; discussion, one hour. Designed for graduate students. Theory and practice of language teaching. S/U grading.

596. Directed Individual Studies or Research. (2 to 4) Tutorial, to be arranged.

597. Preparation for M.A. Comprehensive Examination or Ph.D. Qualifying Examinations. (2 to 8) May be repeated for a maximum of 16 units. S/U grading.

598. Research for and Preparation of M.A. Thesis. (2 to 4) Maximum of 4 units may be applied toward M.A. degree requirements. S/U grading.

599. Research for and Preparation of Ph.D. Dissertation. (2 to 8) S/U grading.

FRESHMAN GENERAL EDUCATION CLUSTERS

College of Letters and Science

UCLA
A265 Murphy Hall
Box 951571
Los Angeles, CA 90095-1571

(310) 206-5446
<http://www.college.ucla.edu/ge/clusters/>

M. Gregory Kendrick, Ph.D., *Director*

Faculty Advisory Committee

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JoAnn Damron-Rodriguez, Ph.D. (*Social Welfare*)
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Keith D. Stolzenbach, Ph.D. (*Civil and Environmental Engineering, Institute of the Environment and Sustainability*)
Matthew Norton Wise, Ph.D. (*Center for Society and Genetics, History*)

Scope and Objectives

Available to entering freshmen only, cluster courses are an option for satisfying general education requirements. Clusters are yearlong, collaboratively taught, interdisciplinary courses that focus on a topic of timely importance, such as the global environment or interracial dynamics. The courses are taught by some of UCLA's most distinguished faculty members and seasoned graduate students. During Fall and Winter Quarters, students attend lecture courses and small discussion sections and/or laboratories. In Spring Quarter, the same students enroll in one of a number of satellite seminars dealing with topics related to the cluster theme.

Freshman clusters are designed to strengthen the writing, quantitative reasoning, critical thinking, and information literacy skills that students need to excel at UCLA. At the conclusion of the entire yearlong cluster, students complete nearly a third of their general education course requirements and fulfill the Writing II requirement. Cluster students are eligible for three terms of honors credit, with the Spring Quarter seminar providing Honors Collegium credit.

For the current cluster course offerings and general education credit, refer to <http://www.college.ucla.edu/ge/clusters/>.

General Education Clusters

Lower Division Courses

M1A-M1B-M1CW. Global Environment. (5-5-5)

(Same as Environment M1A-M1B-M1CW.) Course M1A is enforced requisite to M1B, which is enforced requisite to M1CW. Limited to first-year freshmen. Letter grading. **M1A-M1B.** Multidisciplinary Perspective I, II. Lecture, three hours; discussion, two hours. Human effects on Earth's ecosystem and social and technological solutions to environmental pollution and overpopulation. History and ecology in lectures; laboratory exercises included in discussions. **M1CW.** Special Topics. Seminar, three hours. Enforced requisites: course M1B, and English Composition 3 or 3H or English as a Second Language 36. Examination of specialized environmental topics such as air and water, global warming, and feeding Earth's population. Satisfies Writing II requirement.

20A-20B-20CW. Interracial Dynamics in American Culture and Society. (5-5-5) Course 20A is enforced requisite to 20B, which is enforced requisite to 20CW. Limited to first-year freshmen. Letter grading.

20A-20B. Lecture, three hours; discussion, two hours. Examination of nature and meaning of race in American society through study of history, literature, and law. Consideration, among other topics, of construction of race as social and cultural category among two or more groups and exploration of ways in which race has shaped understanding of American citizenship. **20CW.** Special Topics. Seminar, three hours. Enforced requisites: course 20B, and English Composition 3 or 3H or English as a Second Language 36. Consideration of how experience, debates, and issues of race are represented and understood in historical, legal, cinematic, and literary contexts. Satisfies Writing II requirement.

21A-21B-21CW. History of Modern Thought. (5-5-5)

Course 21A is enforced requisite to 21B, which is enforced requisite to 21CW. Limited to first-year freshmen. Letter grading. **21A-21B.** Lecture, three hours; discussion, two hours. Introduction to key issues in humanities and social sciences through reading of prominent social theories of past four centuries. Consideration of writers from Rousseau and Wollstonecraft to Foucault and Beauvoir in historical context and from perspectives of academic specialties for which their work is fundamental. **21CW.** Special Topics. Seminar, three hours. Enforced requisites: course 21B, and English Composition 3 or 3H or English as a Second Language 36. Examination of cross-section of classical and modern social theories and debates that shape them. Satisfies Writing II requirement.

22A-22B-22CW. Toward World Economy: Perils and Promise of Globalization. (5-5-5)

Course 22A is enforced requisite to 22B, which is enforced requisite to 22CW. Limited to first-year freshmen. Letter grading. **22A-22B.** Lecture, three hours; discussion, two hours. Exploration of causes and mechanisms of globalization as well as its consequences. Critical examination of globalization theories, international institutions of trade, finance, governance, and overall impact of globalization on human society. **22CW.** Special Topics. Seminar, three hours. Enforced requisites: course 22B, and English Composition 3 or 3H or English as a Second Language 36. Topics may include global governance, development, and health. Satisfies Writing II requirement.

23A-23B-23CW. Inside Performing Arts: Interdisciplinary Exploration of Performance in Society and Culture. (5-5-5)

Course 23A is enforced requisite to 23B, which is enforced requisite to 23CW. Limited to first-year freshmen. Letter grading. **23A-23B.** Lecture, four hours; discussion, two hours. Introduction to historical development and evolution of performing arts, aesthetic theories and practices, and political, social, and cultural contexts within which performance has evolved. **23CW.** Special Topics. Seminar, three hours. Enforced requisites: course 23B, and English Composition 3 or 3H or English as a Second Language 36.

Topics include origins and ideas of performance, art and performance, and music as cultural expression. Satisfies Writing II requirement.

M24A-M24B-M24CW. Work, Labor, and Social Justice in U.S. (5-5-5)

(Same as Labor and Workplace Studies M1A-M1B-M1CW.) Course M24A is enforced requisite to M24B, which is enforced requisite to M24CW. Limited to first-year freshmen. Letter grading. **M24A-M24B.** Lecture, three hours; discussion, two hours. Exploration of ways in which work has been transformed over last century, impact of this transformation on working people, and role of labor movement as force for social justice. **M24CW.** Special Topics. Seminar, three hours. Enforced requisites: course M24B, and English Composition 3 or 3H or English as a Second Language 36. Topics include labor law/history, gender, race, and workplace. Satisfies Writing II requirement.

25A-25B-25CW. Politics, Society, and Urban Culture in East Asia. (5-5-5)

Course 25A is enforced requisite to 25B, which is enforced requisite to 25CW. Limited to first-year freshmen. Letter grading. **25A-25B.** Lecture, three hours; discussion, two hours. Comprehensive exploration of historical evolution of popular East Asian urban culture and interrelationship of East Asian politics, social life, and economic and urban cultural expression. **25CW.** Special Topics. Seminar, three hours. Enforced requisites: course 25B, and English Composition 3 or 3H or English as a Second Language 36. In-depth examination of issues in historical and contemporary East Asian popular culture. Satisfies Writing II requirement.

30A-30B-30CW. Never-Ending Stories: Multidisciplinary Perspectives on Myth. (5-5-5)

Course 30A is enforced requisite to 30B, which is enforced requisite to 30CW. Limited to first-year freshmen. Letter grading. **30A-30B.** Lecture, three hours; discussion, two hours. Exploration in depth of particular mythological traditions, aspects of storytelling, role of myth in culture, society, and/or art, and contributions of various disciplines to study of myth. **30CW.** Special Topics. Seminar, three hours. Enforced requisites: course 30B, and English Composition 3 or 3H or English as a Second Language 36. Topics may include myth and modern art (including literature, music, and film), myth and ritual, oral tradition and orality, myth and political ideology, myth and science, hero and trickster, and myths of creation. Satisfies Writing II requirement.

60A-60B-60CW. America in Sixties: Politics, Society, and Culture, 1954 to 1974. (5-5-5)

Course 60A is enforced requisite to 60B, which is enforced requisite to 60CW. Limited to first-year freshmen. Letter grading. **60A-60B.** Lecture, three hours; discussion, two hours. Interdisciplinary exploration of U.S. society from Brown versus Board of Education (1954) to resignation of Nixon. Topics include civil rights, Great Society, anti-Vietnam war movement, political and artistic countercultures, and changes in technology, law, and media. **60CW.** Special Topics. Seminar, three hours. Enforced requisites: course 60B, and English Composition 3 or 3H or English as a Second Language 36. In-depth examination of political and cultural issues affecting U.S. society from 1954 to 1974. Satisfies Writing II requirement.

66A-66B-66CW. Los Angeles: The Cluster. (5-5-5)

Course 66A is enforced requisite to 66B, which is enforced requisite to 66CW. Limited to first-year freshmen. Letter grading. **66A-66B.** Lecture, three hours; discussion, two hours. In-depth look at city in which UCLA is located. Drawing on concept of Los Angeles as laboratory, students engage in systematic way with urban area that is to be their home for next several years. As they do, they come to understand peoples, spaces, politics, and cultures of Los Angeles and its metropolitan region in both present and past, as well as Los Angeles' place in urban world. **66CW.** Special Topics. Seminar, three hours. Enforced requisites: course 66B, and English Composition 3 or 3H or English as a Second Language 36. Topics may include musical cultures of Los Angeles, Los Angeles as global city, Los Angeles in fiction, Southern California and environment, planning for 21st-century Los Angeles, and housing and homelessness in Los Angeles. Satisfies Writing II requirement.

70A-70DW. Evolution of Cosmos and Life. (5 each)

Course 70A is enforced requisite to 70B, which is enforced requisite to 70CW or 70DW. Limited to first-year freshmen. Letter grading. **70A-70B.** Lecture, three hours; discussion, two hours. Use of concept of evolution, as it applies to biological organisms, Earth, solar system, and universe itself, to introduce students to both life and physical sciences. Examination of evolution of universe, galaxy, solar system, and Earth in course 70A; focus on evolution of life in course 70B. **70CW.** Special Topics in Life Sciences. Seminar, three hours. Enforced requisites: course 70B, and English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 70DW. Examination in depth of various issues of evolution in cosmos from life sciences perspective. Satisfies Letters and Science Writing II requirement. **70DW.** Special Topics in Physical Sciences. Seminar, three hours. Enforced requisites: course 70B, and English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 70CW. Examination in depth of various issues of evolution in cosmos from physical sciences perspective. Satisfies Writing II requirement.

71A-71B-71CW. Biotechnology and Society. (5-5-5)

Course 71A is enforced requisite to 71B, which is enforced requisite to 71CW. Limited to first-year freshmen. Letter grading. **71A-71B.** Lecture, three hours; discussion, two hours; laboratory, two hours. Exploration of methods, applications, and implications of biotechnology and of ethical, social, and political implications as well as biological underpinnings. **71CW.** Special Topics. Seminar, three hours. Enforced requisites: course 71B, and English Composition 3 or 3H or English as a Second Language 36. Topics include in-depth examination of ethics and human genetics, bio-weapons and biodefense, sex and biotechnology. Satisfies Writing II requirement.

72A-72B-72CW. Sex from Biology to Gendered Society. (5-5-5)

Course 72A is enforced requisite to 72B, which is enforced requisite to 72CW. Limited to first-year freshmen. Letter grading. **72A-72B.** Lecture, three hours; discussion, two hours. Examination of many ways in which sex and sexual identity shape and are shaped by biological and social forces, approached from complementary perspectives of anthropology, biology, medicine, and sociology. Specific topics include biological origins of sex differences, intersex, gender identity, gender inequality, homosexuality, sex differences, sex/gender and law, and politics of sex research. **72CW.** Special Topics. Seminar, three hours. Enforced requisites: course 72B, and English Composition 3 or 3H or English as a Second Language 36. Topics may include politics of reproduction, sexuality, sexual identity, social construction of gender, and reproductive technologies. Satisfies Writing II requirement.

80A-80B-80CW. Frontiers in Human Aging: Biomedical, Social, and Policy Perspectives. (5-5-5)

Course 80A is enforced requisite to 80B, which is enforced requisite to 80CW. Limited to first-year freshmen. Letter grading. **80A-80B.** Lecture, three hours; discussion, two hours. Examination of aging process from vantage points of multiple disciplines, including biology, psychology, sociology, ethics, and public policy. Study of biomedical and biological aging and psychological, social, and ethical implications of phenomena. **80CW.** Special Topics. Seminar, three hours. Enforced requisites: course 80B, and English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for former course 80C. In-depth examination of gender and aging, cellular aging, cancer, and aging of brain. Satisfies Writing II requirement.

97A. Cluster Colloquia: Variable Topics. (1)

(Formerly numbered 97A-97Z.) Seminar, one hour. Variable topics course designed for students who have completed one GE cluster. Study, through small-group discussion and projects, of selected topics re-

lated to one cluster theme or topic. Consult *Schedule of Classes* for topics and instructors. May be repeated once for credit. P/NP grading.

GEOGRAPHY

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Professors Emeriti

Charles F. Bennett, Jr., Ph.D.
William A.V. Clark, Ph.D.
Gary S. Dunbar, Ph.D.
J. Nicholas Entrikin, Ph.D.
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Thomas W. Gillespie, Ph.D.
Gregory S. Okin, Ph.D.
Yongwei Sheng, Ph.D.
Michael E. Shin, Ph.D.

Assistant Professors

Lisa Kim Davis, Ph.D.
Lieba B. Faier, Ph.D.

Scope and Objectives

Geography is the study of the natural world and how humans have changed it. It examines the physical Earth and life on it, looking at the world's diverse cultures and economies and at the environmental problems they produce.

Geography addresses many issues about the contemporary world. Some are local, such as documenting the development of ethnic neighborhoods within Los Angeles. Others are regional, such as determining the best locations for nature reserves in California. Many are global, such as the study of greenhouse gases and how they affect climates, culture and resource issues in developing countries, and the impact of information technologies on people in different places.

The work of geographers often takes them out of the classroom into the field to collect information on topics that range from the settlement

of new immigrants to the distribution of endangered species, the erosion of shorelines, and the location of high-tech businesses. On other occasions, geographers work in laboratories, using techniques such as the computer analysis of satellite photographs to look for changes in river courses and the computer modeling of shifts in global vegetation patterns and the distribution of human populations. Research is also conducted in libraries and archives, probing documentary sources on human interaction with the natural world and how that world is imagined.

Geography graduates have a wide variety of career opportunities because of their combination of geographical/environmental perspectives and technical skills. UCLA geography students have gone on to become university scholars, school teachers, members of governmental and nongovernmental planning, development, and conservation agencies, business executives, lawyers, and specialists in geographical information analysis for government and private business. Because of its sophisticated focus on the relationship of the global to the local, geography is particularly useful for those who wish to pursue careers with an international focus.

The department has one of the top programs in the U.S. and offers two undergraduate majors that lead to the Bachelor of Arts degree: Geography and Geography/Environmental Studies. The Geography major combines a broad background in the field with specific tracks. The Geography/Environmental Studies major focuses on the impact of humans on the natural environment. Also offered is an undergraduate minor in Geospatial Information Systems and Technologies.

The department also offers M.A. and Ph.D. degrees. Student research projects are conducted in collaboration with a faculty adviser and advisory committee. Graduate students work in most major areas of geography and on projects around the world. Graduate alumni of the department have teaching positions at many leading universities in the U.S. and abroad.

Undergraduate Study

Geography B.A.

The Geography major allows students to combine a broad background in the field with more specific interests and career goals. Students can select classes in several areas of geography such as urban, economic, cultural, environmental, physical, or biogeography. They should consult with the undergraduate adviser to plan a program suitable to their personal objectives.

Preparation for the Major

Required: Three courses (15 units) as follows: Geography 1 or 2, 3 or 4 or 6, and Statistics 12. Each course must be taken for a letter grade.

Transfer Students

Transfer applicants to the Geography major with 90 or more units must complete as many

of the following introductory courses as possible prior to admission to UCLA: one physical geography or biogeography course, one cultural geography or economic geography course, and one statistics course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Eleven upper division geography courses (44 units minimum), each taken for a letter grade.

Geography/Environmental Studies B.A.

The major in Geography/Environmental Studies develops and deepens students' understanding of environmental issues; it explores problem-solving approaches from an interactive people/nature viewpoint and involves analysis of social, physical, and biotic environmental systems. The major's uniqueness lies in its emphasis on its geographical perspective of human impacts on natural systems, as well as of implications of global change on local and regional human systems.

Preparation for the Major

Required: Geography 1 or 2, 3 or 4 or 6, 5, and Statistics 12. Each course must be taken for a letter grade. Students are strongly advised to complete all preparation for the major courses before beginning upper division work in the major.

Transfer Students

Transfer applicants to the Geography/Environmental Studies major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: one physical geography or biogeography course, one cultural geography or economic geography course, one people and ecosystems course, and one statistics course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Eleven upper division geography courses, each taken for a letter grade, that must be distributed as follows: (1) *natural systems core*—two courses from 100, 101, 102, 103, 104, 105, 108, 111, 112, M127; (2) *human systems core*—two courses from 118, 133, 134, 138, 140, 142, M146, 147, 148, 150, 151, M153, 155, 159A; (3) *environmental studies cluster*—four courses from M106, M107, M109, 110, 113, 114, M115, 116, 120, 121, 122, 123, 124, 125, 126, M127, M128, 129, M131, 132, 135, 136, M137, 159C, 159D, 159E; (4) *procedures*—two courses (8 units) from 100A (2 units), 101A (2 units), 105A (2 units), 162, 163, 167, 168, 169, 170, M171, 172, 173, 177; and (5) *regions*—one course from 136, 139, 152, 156, 158, 180, 181, 182A, 182B, 183, 184, 185, 186, 187.

Geography/Environmental Studies majors are advised to complete the required courses in the natural and human systems cores before taking courses in the environmental studies cluster.

Honors Program

The honors program is designed for Geography and Geography/Environmental Studies majors who are interested in completing a research project that culminates in an honors thesis.

To qualify for graduation with departmental honors, students must have a cumulative grade-point average of 3.5 or better in all upper division geography courses and a 3.0 overall GPA. They must enroll in Geography 198A and 198B in two consecutive terms and earn grades of A– or better. They may elect to work with one or two faculty sponsors. Students are awarded highest honors, honors, or no honors based on an evaluation of the thesis by the faculty sponsor(s). Contact the undergraduate advising office for further information.

Computing Specialization

Majors in Geography and Geography/Environmental Studies may select a specialization in Computing by (1) satisfying all the requirements for a bachelor's degree in the specified major, (2) completing Program in Computing 10A, 10B, 30, 60, and Mathematics 61 with a minimum grade of C in each course (Mathematics 32A and 32B are also highly recommended), and (3) completing at least two courses from Geography 104, 167, 168, M171. Students graduate with a bachelor's degree in their major and a specialization in Computing.

Geography Minor

The Geography minor is designed for students who wish to deepen and/or broaden their major program of study with a distinctive yet flexible program of courses encompassing the relationship between environment and society. The minor allows students to develop a coherent strategy for understanding and explaining the manner in which people and the Earth interact. Students have the opportunity to explore the origins, development, morphology, and processes of landscapes inherited from nature, as well as those institutions and cultural, economic, political, and social patterns associated with the human development, occupancy, organization, perception, and use of these landscapes.

To enter the minor, students must have an overall grade-point average of 2.0 or better and file a petition in the Geography Department Advising Office, 1255 Bunche Hall, (310) 825-1166. Courses should be selected in consultation with the departmental adviser.

Required Lower Division Courses (10 units): Two courses from Geography 1, 2, 3, 4, 6. It is recommended that students take these courses before attempting upper division courses.

Required Upper Division Courses (20 units): Any five upper division geography courses.

No more than 8 units may be applied toward both this minor and a major or minor in another department or program, and at least three of the five upper division courses must be taken in residence at UCLA. Transfer credit for any of the above is subject to departmental approval.

Each minor course must be taken for a letter grade. Successful completion of the minor is indicated on the transcript and diploma.

Geography/Environmental Studies Minor

The Geography/Environmental Studies minor is intended for students interested in environmental issues and emphasizes a systems approach to gaining a causal understanding of major environmental problems facing our society and the world at large. The uniqueness of the minor lies in its geographical perspective on the impact, at various geographical scales, of human activity on natural systems and on the implications of global environmental change on local, regional, and global human systems.

To enter the minor, students must have an overall grade-point average of 2.0 or better and file a petition in the Geography Department Advising Office, 1255 Bunche Hall, (310) 825-1166. Courses should be selected in consultation with the departmental adviser.

Required Lower Division Courses (10 units): Geography 5 and one course from 1, 2, 3, 4, or 6. It is recommended that students take these courses before attempting upper division courses.

Required Upper Division Courses (20 units): Three courses from the environmental studies cluster specified within the major and two geography courses from outside the environmental studies cluster.

No more than 8 units may be applied toward both this minor and a major or minor in another department or program, and at least three of the five upper division courses must be taken in residence at UCLA. Transfer credit for any of the above is subject to departmental approval.

Each minor course must be taken for a letter grade. Successful completion of the minor is indicated on the transcript and diploma.

Geospatial Information Systems and Technologies Minor

The Geospatial Information Systems and Technologies minor is designed to provide students with a strong background in the use, application, and development of geospatial/environmental research techniques and methods.

To enter the minor, students must be in good academic standing, have completed Geography 7 with a grade of C or better, and file a petition in the Geography Department Advising Office, 1255 Bunche Hall, (310) 825-1166. For majors in Geography or Geography/Environmental Studies, only two upper division

courses may overlap between the major and this minor.

Required Lower Division Course (5 units): Statistics 12.

Required Upper Division Courses (24 units minimum): Geography 167, 168, 169, and any three courses selected from 154, 162, 163, 166, 170, M171, 172, 173, and 199 (4 units with approval of the faculty adviser). Each upper division course must be completed with a grade of C or better.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better in the minor. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Geography offers Master of Arts (M.A.), Candidate in Philosophy (C.Phil.), and Doctor of Philosophy (Ph.D.) degrees in Geography.

Geography

Lower Division Courses

1. Earth's Physical Environment. (5) Lecture, three hours; laboratory, two hours. Study of Earth's physical environment, with particular reference to nature and distribution of landforms and climate and their significance to people. P/NP or letter grading.

2. Biodiversity in a Changing World. (5) Lecture, three hours; discussion, two hours. Biogeographic exploration of plant and animal diversity and conservation issues on continents and islands around the world. Study of physical, biotic, and human factors responsible for evolution, persistence, and extinction of species and ecological communities. Analysis of effects of human activity. P/NP or letter grading.

3. Cultural Geography. (5) Lecture, three hours; discussion, two hours. Introduction to cultural geography of modern world, with examination of key concepts of space, place, and landscape as these have shaped and been shaped by connections between societies and their natural environments. Examples from variety of landscapes and places since 1800 and especially from Los Angeles region. P/NP or letter grading.

4. Globalization: Regional Development and World Economy. (5) Lecture, three hours; discussion, one hour. Economic geography explores spatial distribution of all forms of human productive activity at number of geographical scales—local, regional, national, and global. Key theme is impact of increasingly powerful global economic forces on organization of production. P/NP or letter grading.

5. People and the Earth's Ecosystems. (5) Lecture, three hours; laboratory, two hours. Exploration of ways in which human activity impacts natural environment and how modification of environment can eventually have significant consequences for human activity. Examination, using case studies, of real environmental problems that confront us today. P/NP or letter grading.

6. World Regions: Concepts and Contemporary Issues. (5) Lecture, three hours; discussion, two hours. Interdisciplinary and historical approach to modern peoples, their differences in wealth or poverty, and their local origins of food production. Brief introduction to physical geography and biogeography of each region. Discussion of each region's peoples, languages, foods, prehistories, and histories. P/NP or letter grading.

7. Introduction to Geographic Information Systems. (5) (Formerly numbered 168.) Lecture, three hours; laboratory, two hours. Designed for freshmen/sophomores. Introduction to fundamental principles and concepts necessary to carry out sound geographic analysis with geographic information systems (GIS). Reinforcement of key issues in GIS, such as geographic coordinate systems, map projections, spatial analysis, and visualization of spatial data. Laboratory exercises use database query, manipulation, and spatial analysis to address real-world problems. P/NP or letter grading.

88A-88Z. Lower Division Seminars: Geography. (4 each) Discussion, three hours; reading period, one hour. Seminars designed to explore various themes and issues pertinent to environment and people. Seminar topics advertised in department during previous term. P/NP or letter grading.

88GE. Seminar Sequence: Special Topics in Geography. (5) Seminar, three hours. Enforced requisite: course 5. Designed for sophomores/juniors. Exploration of aspects of lecture topic through readings, images, and discussions. P/NP or letter grading.

Upper Division Courses

100. Principles of Geomorphology. (4) Lecture, three hours; reading period, one hour. Requisite: course 1. Recommended: course 100A. Study of processes that shape the world's landforms, with emphasis on weathering, mass movement and fluvial erosion, transport, deposition; energy and material transfers; space and time considerations.

100A. Principles of Geomorphology: Field and Laboratory. (2) Laboratory/fieldwork, six hours. Corequisite: course 100. Field and laboratory investigations of weathering, mass movement, fluvial erosion, transport, deposition; related geomorphic phenomena. P/NP or letter grading.

101. Coastal Geomorphology. (4) Lecture, three hours; reading period, one hour. Requisite: course 1. Recommended: course 101A. Study of origin and development of coastal landforms, emphasizing past and present changes, hydrodynamic processes, sediment transfers, and such features as beaches, estuaries, lagoons, deltas, wetlands, dunes, seacliffs, and coral reefs, together with coastal zone management. P/NP or letter grading.

101A. Coastal Geomorphology: Field and Laboratory. (2) Laboratory/fieldwork, six hours. Corequisite: course 101. Field and laboratory investigations of coastal landforms, emphasizing past and present changes, hydrodynamic processes, sediment transfers, and such features as beaches, estuaries, lagoons, deltas, wetlands, dunes, and seacliffs, together with coastal zone management.

102. Tropical Climatology. (4) Lecture, three hours. In-depth exploration of development of tropical climate, with special reference to hurricanes, ENSO, and monsoons. Examination of human interaction with tropical climate processes and human-induced climate change in tropics. Use of climatological information to foster sound environmental management of climate-related resources in tropics. P/NP or letter grading.

103. Paleoclimatology and Ice-Age Environments. (4) Lecture, three hours; discussion, one hour. Requisite: course 1. Study of past climates and their environmental impact, with emphasis on the last three million years, including evidence for glacial and interglacial oscillations, historic changes, paleogeographic reconstruction, external and internal forcing mechanisms, and human implications. P/NP or letter grading.

104. Climatology. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Examination of the many relations between climate and the world of man. Application of basic energy budget concepts to the microclimates of relevance to ecosystems of agriculture, animals, man, and urban places. P/NP or letter grading.

105. Hydrology. (4) Lecture, three hours. Requisites: course 104, Statistics 12. Role of water in geographic systems: hydrologic phenomena in relation to climate, landforms, soils, vegetation, and cultural processes and impacts on landscape. Field projects required. P/NP or letter grading.

105A. Hydrology: Field and Laboratory. (2) Laboratory/fieldwork, six hours. Corequisite: course 105. Field and laboratory investigations into role of water in geographic systems: hydrologic phenomena in relation to climate, landforms, soils, vegetation, and cultural processes and impacts on the landscape. Students solve applied hydrology problems in laboratory and make hydrologic measurements in the field.

M106. Applied Climatology: Principles of Climate Impact on Natural Environment. (4) (Formerly numbered 106.) (Same as Atmospheric and Oceanic Sciences M106.) Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Exploration of knowledge and tools to solve complex problems in contemporary applied climatology, including current practices, influence of climate on environment, and human influence on changing climates. P/NP or letter grading.

M107. Soil and Water Conservation. (4) (Same as Environment M114.) Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Systematic study of processes of and hazards posed by erosion, sedimentation, and pollution and techniques needed to conserve soil and maintain environmental quality. Scope includes agriculture, forest engineering, mining, and other rural uses of land. P/NP or letter grading.

108. World Vegetation. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Characteristics, distribution, environmental and cultural relationships of world's principal vegetation patterns. P/NP or letter grading.

M109. Human Impact on Biophysical Environment: What Science Has Learned. (4) (Same as Environment M109.) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Examination of history, mechanisms, and consequences of interactions between humans and environment. Exploration in depth of three thematic topics (deforestation, desertification, and greenhouse gas increase and ozone depletion) and four major subjects (soil, biodiversity, water, and landforms). P/NP or letter grading.

110. Population and Natural Resources. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Examination of debate about environmental change and ability of the planet to maintain a growing population. Introduction and evaluation of basic demographic processes in context of food production, energy use, and environmental degradation. Discussion of major debates about use of resources in context of increasing population in developing countries and decreasing population in Western countries. P/NP or letter grading.

111. Forest Ecosystems. (4) Lecture, three hours; field trips. Requisite: course 2 or Life Sciences 1. Designed for juniors/seniors. Evaluation of ecological principles as they apply to forests. Emphasis on constraints of physical environment, biotic interactions, succession, disturbances, and long-term environmental change. P/NP or letter grading.

112. Analytical Animal Geography. (4) Lecture, three hours. Requisites: courses 1, 2 or Life Sciences 1, Statistics 12. Designed for juniors/seniors. Analysis of processes of expanding and contracting distribution areas. Focus on island biogeography and its implications for biodiversity trends in natural and anthropogenic environments. P/NP or letter grading.

113. Humid Tropics. (4) Lecture, three hours. Requisite: course 2 or 5 or Life Sciences 1. Designed for juniors/seniors. Examination of humid tropics, with emphasis on rainforests, their ecological principles, and forms of land use. Letter grading.

114. Africa and African Diaspora in Americas. (4) Lecture, three hours. Designed for juniors/seniors. Historical-geographical examination of Africa's role in Americas, with emphasis on environment, agriculture, food systems, and medicinal crops. P/NP or letter grading.

M115. Environmentalism: Past, Present, and Future. (4) (Same as Environment M132 and Urban Planning CM165.) Lecture, three hours; discussion, one hour. Exploration of history and origin of major environmental ideas, movements or countermovements they spawned, and new and changing nature of modern environmentalism. Introduction to early ideas of environment, how rise of modern sciences reshaped environmental thought, and how this was later transformed by 19th-century ideas and rise of American conservation movements. Review of politics of American environmental thought and contemporary environmental questions as they relate to broader set of questions about nature of development, sustainability, and equity in environmental debate. Exploration of issues in broad context, including global climate change, rise of pandemics, deforestation, and environmental justice impacts of war. Letter grading.

116. Biogeography of Plant and Animal Invasions. (4) Lecture, three hours; reading period, one hour. Requisite: course 1 or 2 or 5. Examination of theories and examples of invasion of new environments by plants and animals introduced through natural processes or by human activity. P/NP or letter grading.

118. Medical Geography. (4) Lecture, three hours; reading period, one hour. Requisite: course 5. Examination of patterns of population/place/disease interactions and some effects of change and development on disease etiology and problems of healthcare.

119. Biophysical and Social Transformations in Northern Regions. (4) Lecture, three hours. Enforced requisite: course 5. Substantial transformation of world's northern high latitudes due to climate change, natural resource development, and key demographic trends in 21st century. Climate models project rising mean air temperatures and precipitation, and less sea-ice cover in Arctic Ocean, consistent with field observations of rising river flows, shrinking glaciers, and thawing permafrost. Ability of northern societies to react to these phenomena is shaped by new legal frameworks, like aboriginal land-claims agreements in North America, and resource economics, like oil and gas industry in West Siberia. Eight northern countries (including U.S.) face array of challenges and opportunities ranging from species extinctions to increased viability of shipping lanes. Major cities like Vancouver and Helsinki are becoming highly desired places to live, emigrate, and work. Blending of principles of human and biophysical geography to gain new understanding of northern quarter of planet, placed within broader global context. Letter grading.

120. Conservation of Resources: North America. (4) Lecture, three hours. Designed for juniors/seniors. Analysis of basic principles and problems associated with conservation of natural resources in the U.S. and Canada. P/NP or letter grading.

121. Conservation of Resources: Underdeveloped World. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Analysis of principles and problems of conservation of natural resources of the underdeveloped world. P/NP or letter grading.

122. Wildlife Conservation in Eastern and Southern Africa. (4) Lecture, three hours; reading period, one hour. Requisite: course 5. Designed for juniors/seniors. Analysis of tropical ecosystems of eastern Africa, including wildlife communities, vegetation, climate, and human impact. Discussion of national park systems and their natural and anthropogenic ecological dynamics. P/NP or letter grading.

123. Bioresource Management. (4) Lecture, three hours. Requisites: courses 2, 5. Recommended: Statistics 12. Designed for juniors/seniors. Theory and practice of management and conservation of bioresources. Introduction to wildlife management, endangered species conservation, and design and maintenance of National Parks and ecological reserves. P/NP or letter grading.

124. Environmental Impact Analysis. (4) Lecture, three hours. Preparation: two environmental studies cluster courses. Requisite: Statistics 12. Introduction to interdisciplinary analysis of local and regional impacts on environmental systems. Evaluation of state and federal concepts for analysis of environmental impact. P/NP or letter grading.

125. Health and the Global Environment. (4) Lecture, three hours; reading period, one hour. Impact of the environment and lifestyle on individual health examined from a geographical perspective, with examples from both developed and developing countries. P/NP or letter grading.

126. Geography of Extinction. (4) Lecture, three hours; reading period, one hour. Requisite: course 5. Designed for juniors/seniors. Geographic and taxonomic survey and analysis of biotic extinctions over the past 15,000 years. Identification of extinction factors and pathways through case studies of extinct and endangered species and communities. P/NP or letter grading.

M127. Soils and Environment. (4) (Same as Ecology and Evolutionary Biology M127 and Environment M127.) Lecture, three hours; discussion, one hour; field trips. General treatment of soils and environmental implications: soil development, morphology, and worldwide distribution of soil orders; physical, chemical, hydrologic, and biological properties; water use, erosion, and pollution; management of soils as related to plant growth and distribution. P/NP or letter grading.

M128. Global Environment and Development: Problems and Issues. (4) (Same as Urban Planning CM166.) Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Questions of population, resource use, Third World poverty, and environment. Analysis of global economic restructuring and its connections to changing organization of production and resulting environmental impacts. Case studies from Africa, Latin America, Asia, and the U.S. P/NP or letter grading.

129. Seminar: Environmental Studies. (4) Seminar, three hours; reading period, two hours. Preparation: one course each from natural and human systems cores, three environmental studies cluster courses. Limited to seniors. Qualitative/quantitative analysis of problems associated with rational protection and use of selected environmental systems (urban, rural, forest, desert, coastal, water, soil, or others). P/NP or letter grading.

130. Geographical Discovery and Exploration. (4) Lecture, three hours; reading period, one hour. Requisites: courses 1, 3. Designed for juniors/seniors. Survey of history of exploration, from earliest times to modern, with emphasis on period from Marco Polo to the present.

M131. Environmental Change. (4) (Formerly numbered 131.) (Same as Environment M130.) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Examination of natural forces producing environmental changes over past two million years. How present landscape reflects past conditions. Effects of environmental change on people. Increasing importance of human activity in environmental modification. Focus on impact of natural and anthropogenic changes on forests. P/NP or letter grading.

132. Food, Environment, and Agriculture. (4) Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Historical and thematic orientation to agriculture revolutions and their role in environmental and cultural transformations in human history. P/NP or letter grading.

133. Cultural Geography of Modern World. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors and graduate students. Historical and structural approach to cultural geography of modern world system, with particular emphasis on structure and functioning of its core, semi-periphery, and periphery. P/NP or letter grading.

134. Space, Place, and Nature in Western Thought. (4) Lecture, three hours. Designed for juniors/seniors. History of development of basic ideas of geography—space, place, and nature—in Western

thought. Relationship between those ideas and conceptions of science, knowledge, and inquiry. P/NP or letter grading.

135. African Ecology and Development. (4) Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Overview of contemporary ecological and development issues in sub-Saharan Africa. P/NP or letter grading.

136. Technology, Nature, and the American Landscape. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Study of evolution of cultural landscapes of the area that is now the U.S. Examination of past geographies and of geographical change through time. P/NP or letter grading.

M137. Historical Geography of American Environment. (4) (Same as Environment M137.) Lecture, three hours. Designed for juniors/seniors. Study of systematic changes of natural environment in U.S. during historical time, with emphasis on interplay between and among natural factors of climate, soils, vegetation, and landforms, and human factors of settlement, economic activity, technology, and cultural traits. P/NP or letter grading.

138. Place, Identity, and Networked World. (4) Lecture, three hours; reading period, one hour. Communications technologies, such as personal computers and Internet, seem to be connected to dramatic changes in identities of people, groups, and places. Exploration of those changes and their implications for social institutions and human values and practices. P/NP or letter grading.

139. Japan in World: Culture, Place, and Global Connections. (4) Lecture, three hours; reading period, one hour. Focus on questions of culture and place in Japan. Exploration of ways that these questions—and Japan itself—have been shaped by historical and contemporary interactions involving people in both Japan and other parts of world. P/NP or letter grading.

140. Political Geography. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Spatiality of political activity, spatial constitution of political power, control over space as central component to political struggles. Studies at local, national, state, and global scales. P/NP or letter grading.

142. Population Geography. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Study of social and behavioral perspectives influencing people in their patterns of demographic change, migration, and mobility, with special emphasis on spatial relationships and selected case studies. P/NP or letter grading.

144. Ethnicity in the American City. (4) Lecture, three hours; reading period, two hours. Limited to juniors/seniors. Designed to encourage and facilitate critical thinking about geographical aspects of ethnicity in contemporary America. Use of comparative perspective to explain changing distribution, social, economic, and political behavior, and adjustment problems ethnic groups face in contemporary American city. P/NP or letter grading.

145. Landscape and American Dreams. (4) Lecture, three hours; one half-day field trip. Introduction to concepts, methods, and skills of landscape study in cultural and historical geography through reflections on cultural landscapes and their representation in Europe, the U.S., and California. Survey of specific concept or method of landscape study each week, with detailed discussion of its expression in American and Californian geography. P/NP or letter grading.

M146. Feminist Geography. (4) (Same as Women's Studies M146.) Lecture, three hours; discussion, one hour. Critical engagement of gender as concept of geographic inquiry. Gender as spatial process, analysis of feminist geographic theory and methods, landscapes of gender, challenges of representing gender. Spaces of femininity, masculinity, and sexuality. P/NP or letter grading.

147. Social Geography. (4) Lecture, three hours; discussion, one hour. Study of spatiality of social differences such as race, class, gender, age, sexuality, lo-

cation. Critical explorations of identity, social categories, and spatial structures. Importance of space and place in social life. P/NP or letter grading.

148. Economic Geography. (4) Lecture, three hours; reading period, one hour. Requisite: course 4. Designed for juniors/seniors. Geographical aspects of economic production and growth. General theory of space-economy. Land-use processes. Location of industry. Regional development. P/NP or letter grading.

M149. Transportation Geography. (4) (Same as Urban Planning M150.) Lecture, three hours. Requisite: course 3 or 4. Designed for juniors/seniors. Study of geographical aspects of transportation, with focus on characteristics and functions of various modes and on complexities of intra-urban transport. P/NP or letter grading.

150. Urban Geography. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Analysis of development, functions, spatial patterns, and geographic problems of cities. P/NP or letter grading.

151. Cities and Social Difference. (4) Lecture, three hours; discussion, one hour. City landscapes embody best and worst of U.S. society: diversity and poverty, opportunity and violence. Study of urban spaces, social differences, inequality, and conflicts over uses and meanings of city space. Social urban geography. P/NP or letter grading.

152. Cities of Europe. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Urbanization of Europe, growth of city systems and internal spatial structure, functions, and geographic problems of contemporary European cities. Particular attention to historical development and landscapes of capital cities such as Rome, Paris, and Berlin. P/NP or letter grading.

M153. Past Societies and Their Lessons for Our Own Future. (5) (Same as Anthropology M158Q and Honors Collegium M152.) Lecture, two hours; discussion, two hours. Examination of modern and past tribal and band societies (Amazonian Indians, Kalahari San, New Guineans, and others) that met varying fates, as background to examination of how modern state societies are coping or failing to cope with similar issues. P/NP or letter grading.

154. Images of Earth: World from Above. (4) (Formerly numbered 166.) Lecture, three hours. Use of maps, charts, diagrams, and other images to show how Earth has been represented through ages, how they have been influenced by current ideas and, in turn, how they have themselves influenced course of events. P/NP or letter grading.

155. Industrial Location and Regional Development. (4) Lecture, three hours. Requisite: course 4 or Economics 1 or 2 or 5 or 11. Designed for juniors/seniors. Reexamination of industrial location theory in light of contemporary theories of industrial organization and local labor markets. Consideration of empirical patterns of industrialization and regional growth, with special reference to Frostbelt/Sunbelt shifts and offshore relocation. P/NP or letter grading.

156. Metropolitan Los Angeles. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Study of origins, growth processes, internal structure and pattern, interactions, environmental and spatial problems of the Los Angeles metropolitan area. P/NP or letter grading.

157. Models of Regional Growth and Change. (4) Lecture, three hours; reading period, one hour. Requisite: course 4. Recommended: Statistics 12. Examination of empirical and theoretical issues of regional growth and change. Introduction to supply and demand-based models of regional development. P/NP or letter grading.

158. Korean Urban Experience. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors with previous coursework in geography or East Asian studies. Study of cities by geographers entails analysis of evolution, functions, spatial patterns, and other geographical problems of urban societies throughout history. Examination of Korean urban experience as found in Seoul, South Korea, along with

other cities in both Koreas and overseas where Korean diaspora resides. Korean experience to be juxtaposed against responses by other cities of world to similar challenges. Geography of housing and associated processes of urban redevelopment whereby built environment is continuously being reproduced and transformed. Current urban debates, as well as topics showing interplay between competing visions of city. P/NP or letter grading.

159A-159E. Problems in Geography. (4 each) Discussion, three hours; reading period, one hour. Preparation: completion of three courses in a concentration. Limited to seniors. Seminar course in which students carry out intensive research projects developed from courses within a concentration. P/NP or letter grading. **159A.** Urban and Regional Development Studies; **159B.** Spatial Demography and Social Processes in the City; **159C.** Culture and Environment in the Modern World; **159D.** Physical Geography; **159E.** Biogeography.

Procedures

162. Glacier Environments of California's High Sierra. (4) Fieldwork, 10 hours; discussion, four hours. Introduction to alpine glacial environment through three hours of introductory lecture followed by intensive seven-day field trip to California's High Sierra. Students carry out laboratory exercises, as well as data collection for research projects designed around their individual interests. Presentation of additional evening lectures, using presentation facilities at Sierra Nevada Aquatic Research Laboratory (SNARL). Offered in summer only. P/NP or letter grading.

163. Field Analysis in Biogeography. (4) Fieldwork, eight hours. Requisites: courses 2, 5, 108, 112. Examination of field procedures and intellectual concepts used in observation, measurement, analysis, and interpretation of phenomena pertinent to biogeography and interrelated human influences. P/NP or letter grading.

166. Environmental Modeling. (4) Lecture, one hour; laboratory, two hours. Presentation of basic concepts related to computer modeling of biogeochemical cycles, geomorphic processes, and other phenomena relevant to changing Earth and its inhabitants. Laboratory exercises include building basic computer models and working with existing models. P/NP or letter grading.

167. Cartography. (5) Lecture, two hours; laboratory, four hours. Enforced requisite: course 7. Designed for juniors/seniors. Survey of field of cartography. Theory and construction of map projections, compilation procedures, principles of generalization, symbolization, terrain representation, lettering, drafting and scribing, and map reproduction methods. P/NP or letter grading.

168. Intermediate Geographic Information Systems. (4) Lecture, two hours; laboratory, two hours. Enforced requisite: course 7. Extension of basic concepts presented in course 7. How geographic and spatial analyses inform, integrate, and extend scientific inquiry in physical, life, and social sciences. Discussion of range of decisions and critical judgments necessary to carry out sound spatial analyses. Development of technical proficiency within geographic information systems (GIS) environment. P/NP or letter grading.

169. Satellite Remote Sensing and Imaging Geographic Information Systems. (4) Lecture, two hours; laboratory, one hour. Enforced requisite: course 7. Introduction to fast-growing field of environmental monitoring from space. Application of Landsat, radar, Global Positioning System (GPS), and Earth Observing System satellites to land-use change, oceanography, meteorology, and environmental monitoring. Introduction to digital image-processing and imaging geographic information systems (GIS) software. P/NP or letter grading.

170. Advanced Geographic Information Systems. (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 168. Introduction to full geographic information systems (GIS) functionality, using

ARC/INFO on UNIX workstations. Spatial manipulation, query, and computation of datasets carried out in project-oriented approach. P/NP or letter grading.

M171. Introduction to Spatial Statistics. (4) (Same as Statistics M171.) Lecture, three hours; laboratory, one hour. Requisite: one course from Statistics 10, 11, 12, 13, or 14. Introduction to methods of measurement and interpretation of geographic distributions and associations. P/NP or letter grading.

172. Remote Sensing: Digital Image Processing and Analysis. (4) Lecture, three hours; laboratory, one hour. Requisite: course 169. Digital processing methods for manipulating and analyzing image data. Topics include statistical description, geometric and radiometric correction, classification, image enhancement and filtering, and change detection schemes. Reinforcement of procedures presented in lecture with laboratory exercises and student project. P/NP or letter grading.

173. Geographic Information Systems Programming and Development. (4) Lecture, two hours; laboratory, two hours. Enforced requisite: course 168. Introduction to fundamental concepts and architecture of programming objects in widely used geographic information systems (GIS), and programming in GIS environment. Topics centered on GIS customization and development using variety of programming languages. Lectures followed by laboratory exercises. P/NP or letter grading.

177. Field Methods in Physical Geography. (5) Lecture, three hours; laboratory, three hours. Examination of field procedures and concepts used in observation, measurement, analysis, and interpretation of physical phenomena pertinent to natural and built environment. Topics vary from year to year and may include soils, geomorphology, and field methods in geographic information science. May be repeated for credit with topic change. P/NP or letter grading.

Regions

180. North America. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Delimitation and analysis of principal geographic regions of the U.S. and Canada. P/NP or letter grading.

181. Mexico, Central America, Caribbean. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Study of geographic factors, physical and cultural, that are basic to understanding the historical development of Middle America and the contemporary economic and cultural geography of Mexico and countries of Central America and the West Indies. P/NP or letter grading.

182A. Spanish South America. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Study of geographic factors, physical and cultural, that are basic to understanding historical development of Spanish South America and contemporary economic and cultural geography of individual Spanish-speaking countries. P/NP or letter grading.

182B. Brazil. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Study of geographic factors, physical and cultural, that are basic to understanding historical development of Portuguese South America and contemporary economic and cultural geography of Brazil. P/NP or letter grading.

183. Europe. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Study of geographic conditions and their relation to economic, social, and political problems in Europe. P/NP or letter grading.

184. California. (4) Lecture, three hours; reading period, one hour. Limited to juniors/seniors. Systematic and regional treatment of geography of California, including physical, cultural, and economic aspects and detailed studies of various regions. P/NP or letter grading.

185. South and Southeast Asia. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Regional synthesis with varying emphasis on the people of South or Southeast Asia in their physical, biotic, and cultural environment and its dynamic transformation. P/NP or letter grading.

186. Contemporary China. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Systematic geographic analysis of elements of landscape, resources, population, and socioeconomic characteristics of the People's Republic of China. Dynamics that have led to China's major role in the East Asian and international scene, with special attention to China-Japan and Sino-American relations and their geographic bases. P/NP or letter grading.

187. Middle East. (4) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Analysis of economic, social, and political geography of the area extending from Iran to Morocco and from Turkey to Sudan. Emphasis on geographical themes and problems during historical and modern times. P/NP or letter grading.

Special Studies

194. Research Group Seminars: Geography. (2) Seminar, two hours; research group meeting, two hours. Designed for undergraduate students who are part of research group. Discussion of research methods and current literature in field or of research of faculty members or students. May meet concurrently with graduate research seminar. May be repeated for credit with topic change. P/NP grading.

C194A. Research Group Seminars: Controversies in Earth System Science. (1) Seminar, two hours. Designed for undergraduate students who are part of research group. Biweekly seminar to discuss emerging issues and controversies in earth system science. Topics include oscillatory climate phenomena, biogeochemical cycling, biocomplexity, land/atmosphere interactions, paleoclimate, and human-induced environmental change. May be repeated for credit. Concurrently scheduled with course C296A. P/NP grading.

195. Community or Corporate Internships in Geography. (4) Tutorial, four hours. Limited to juniors/seniors. Internship in supervised setting in community agency or business. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for credit. Individual contract with supervising faculty member required. P/NP or letter grading.

198A-198B. Honors Research in Geography I, II. (4-4) Tutorial, to be arranged. Preparation: 3.25 grade-point average overall, at least five upper division geography courses with 3.5 grade-point average. Limited to juniors/seniors. Development and completion of honors thesis or comprehensive research project under direct supervision of one or two faculty members. May be repeated for maximum of 16 units. Individual contract required. Letter grading.

199. Special Studies. (2 to 8) Tutorial, to be arranged. Limited to juniors with B average in major or seniors. May be repeated for maximum of 16 units. P/NP or letter grading.

Graduate Courses

Environment

200. History and Paradigms of Geomorphology. (4) Lecture, two hours; discussion, one hour; reading period, eight hours. Preparation: two courses from 101, 103, 105, M107. Requisite: course 100. Analysis of geomorphic theories since the scientific revolution, with emphasis on catastrophism, uniformitarianism, glacial theories, isostasy and eustasy, evolution and cyclicity, thermodynamics and mechanics, quantification, and current paradigms. View of each theme in its contemporary milieu.

201. Coastal Geomorphology Seminar. (4) Discussion, three hours; reading period, five hours; fieldwork. Requisites: courses 100, 101. Discussion of selected topics pertaining to geomorphic processes and responses observable in the coastal zone. May be repeated for credit.

202. Fluvial Geomorphology Seminar. (4) Discussion, three hours; reading period, five hours; fieldwork. Requisites: courses 100 and 105, or Civil Engi-

neering 150. Discussion of selected topics pertaining to action of running water in shaping the physical landscape. May be repeated for credit.

203. Glacial Geomorphology Seminar. (4) Discussion, three hours; reading period, five hours; fieldwork. Requisites: courses 100, 103. Discussion of selected topics pertaining to action of snow and ice in arctic and alpine environments. May be repeated for credit.

204A-204B-204C. Advanced Climatology. (4) Lecture, three hours; laboratory, one hour. Preparation: first year of calculus and acquaintance with Fortran IV. Requisite: course 104. Courses must be taken in sequence. Introduction to tools and concepts of environmental physics of relevance to natural and man-made landscapes. Such basic intellectual, mathematical, and computer programming tools are of special concern to physical geographers, ecologists, and architects.

205. Seminar: Climatology. (4) Discussion, three hours; reading period, one hour. Requisites: courses 204A, 204B, 204C. Selected topics. May be repeated for credit.

M206. Introduction to Biophysical Modeling of Land Surface Processes and Land/Atmosphere Interactions. (4) (Formerly numbered 206.) (Same as Atmospheric and Oceanic Sciences M206.) Lecture, two hours; laboratory, one hour; reading period, one hour. Designed for graduate students. Presentation of introductory knowledge for graduate students to understand nature, principles, and scope of biophysical modeling of land surface processes, including ideal canopy model, radiation, heat and CO₂ fluxes transfer, and satellite data application. Laboratory sessions included. S/U or letter grading.

207. Regional Climate and Terrestrial Surface Processes. (4) Seminar, three hours. Designed for graduate students. Physical concepts and basic principles of land-surface/atmosphere interactions. Exploration of topics in terms of regional and global perspective and implications. Human activities cause changes in land cover, which in turn affect regional climate. Some regions, in particular, appear to be "hot spots." Regions to be studied in detail. S/U or letter grading.

208. Advanced Biogeography: Plants. (4) Lecture, two hours; discussion, one hour; reading period, one hour. Requisites: courses 108, and 110 or 116. Intensive review and analysis of physical and cultural factors influencing plant distributions.

212. Advanced Biogeography: Animals. (4) Lecture, two hours; discussion, one hour; reading period, one hour. Requisite: course 112. Intensive review and analysis of biophysical and cultural factors influencing animal distributions. S/U or letter grading.

213. Seminar: Biogeography. (4) Discussion, three hours; reading period, two hours. Requisite: course 208 or 212. Related research projects growing out of course 208 or 212. May be repeated for credit.

215. Quaternary Studies: Physical Aspects. (4) Discussion, three hours; reading period, two hours; fieldwork, three hours. Preparation: at least one course from 200 through 205 or one appropriate graduate course in atmospheric and oceanic sciences or Earth and space sciences. Analysis of changing physical environment of Quaternary period. May be repeated for credit.

217. Quaternary Studies: Ecological Aspects. (4) Discussion, three hours; reading period, two hours. Requisites: courses 202 or 204A, 204B, and 204C or 208 or 212 or one appropriate graduate course in anthropology, botany, Earth and space sciences, or zoology. Analysis of ecological aspects of environmental change during Quaternary period. May be repeated for credit.

218. Advanced Medical Geography. (4) Lecture, two hours; discussion, one hour; reading period, one hour. Requisite: course 118. In-depth study of selected topics in medical geography and intense review of recent research.

223. Seminar: Humid Tropics. (4) Seminar, three hours; reading period, two hours. Designed for graduate students. Selected topics. Biophysical and cultural

complexes of the humid tropics, with emphasis on problems related to human settlement and livelihood. May be repeated for credit. S/U or letter grading.

228. Human Security and Environmental Change. (4) Seminar, three hours. Discussion of impact of environmental change on food, water, and physical security of human populations and societies' adaptations to environmental change. Topics vary from year to year. S/U or letter grading.

M229. Resource-Based Development. (4) (Same as Urban Planning M234C.) Discussion, three hours. Recommended preparation: Urban Planning 234A. Some major issues associated with development of specific natural resources. Topics include nature of particular resource (or region associated with it), its previous management, involvement of state, corporations, and local groups, and environmental and social impact of its development. Letter grading.

Human Geography

231. Terminology and Theory in Political Economy: Deconstruction and Reconstruction of Approaches in Research, Writing, and Practice. (4) Discussion, three hours; reading period, three hours. Designed for graduate students. Deconstruction of oft-used terms in intellectual discourse with goal of making assumptions more explicit, analysis more concise, and use of theory to inform practice (and vice versa) more successful. Attempt to reconstruct a more concise and useful terminology to inform theoretical inquiry and research practice. S/U or letter grading.

232. Advanced Cultural Geography. (4) Lecture, two hours; discussion, one hour; reading period, one hour. Requisite: course 133. Lectures and discussions around specific aspects of development of cultural landscape in different geographic environments.

233. Seminar: Cultural Geography. (4) Seminar, three hours; reading period, two hours. Discussions on particular topics in cultural geography. Content may vary from year to year. May be repeated for credit. S/U or letter grading.

234. Environment and Subsistence in Indigenous Cultures. (4) Seminar, three hours. Discussion on resource management strategies and environmental issues in indigenous cultures. Topics vary from year to year.

235. Seminar: Social Geography. (4) Seminar, three hours; reading period, one hour. Process of doing social/cultural geography entails conceptualizing, adapting, and reformulating social and critical theories of space, subject, and power. Examination of this process by considering theoretical themes that shape concepts of social space and social research. Theoretical discussions of recent research in social/cultural geography, particularly around topics of gender, race sexuality, subjects and spatiality resistance and agenda, and social difference and identity. S/U or letter grading.

237. Seminar: Historical Geography. (4) Seminar, three hours; reading period, two hours. Theory and practice of historical geography in North America and Europe. May be repeated for credit. S/U or letter grading.

240. Advanced Political Geography: Geopolitics. (4) Lecture, two hours; discussion, one hour; reading period, one hour. Intensive study of theories and principles of geopolitics. Selected regions used as examples of differing techniques of study in geopolitics. S/U or letter grading.

241. Seminar: Political Geography. (4) Discussion, three hours; reading period, two hours. Requisite: course 240. Related research projects growing out of course 240. May be repeated for credit.

242. Advanced Population Geography. (4) Lecture, three hours; reading period, one hour. Requisite: course 142. Study of population dynamics and migration, spatial variation in population composition, and population resource problems, diffusion, and epidemiology.

248. Location and Space Economy. (4) Lecture, two hours; discussion, one hour; reading period, one hour. Methods of locational analysis as applied to problems of regional growth and development. S/U or letter grading.

249. Seminar: Economic Geography. (4) Discussion, three hours; reading period, two hours. Requisite: course 248. Related research projects growing out of course 248. May be repeated for credit.

250. Urban Systems. (4) Lecture, two hours; discussion, one hour; reading period, one hour. General study of hierarchy of urban places, including diffusion within urban hierarchy and theories to account for location and size distribution of cities. S/U or letter grading.

251. Seminar: Urban Geography. (4) Discussion, three hours; reading period, two hours. Requisite: course 250. Related research projects growing out of course 250. May be repeated for credit.

Procedures

260. Advanced Field and Laboratory Analysis in Geomorphology. (4) Laboratory/fieldwork, 10 hours. Preparation: two courses from 200, 201, 202, 203, 215. Designed for graduate students. Examination of advanced field and laboratory procedures used in contemporary geomorphic research, with emphasis on scientific design, instrumentation, and data evaluation.

262. Advanced Field Analysis: Biogeography. (8) Fieldwork, 10 hours. Observation, measurement, and analysis of biogeographic phenomena, including identification and evaluation of biotic populations and communities and their modifications resulting from the impact of human activity.

268. Advanced Projects in Geographic Information Systems (GIS)/Remote Sensing. (4) Discussion, one hour; laboratory, three hours. Recommended prerequisite: course 169 or 170 or Earth and Space Sciences 150. Familiarity with a GIS or image processing package expected. Individualized research projects conducted on UNIX platforms within a structured course environment. All aspects of a modest but original project, including data acquisition, ingestion, and analysis; interpretation of results and presentation in publication-style format.

M270A-M270B-M270C. Seminars: Climate Dynamics. (2 to 4 each) (Same as Atmospheric and Oceanic Sciences M272A-M272B-M272C and Earth and Space Sciences M270A-M270B-M270C.) Seminar, two hours. Archaeological, geochemical, micropaleontological, and stratigraphic evidence for climate change throughout geological past. Rheology and dynamics of climatic subsystems: atmosphere and oceans, ice sheets and marine ice, lithosphere and mantle. Climate of other planets. Modeling, simulation, and prediction of modern climate on monthly, seasonal, and interannual time scale. May be repeated for credit. S/U or letter grading.

M272. Spatial Statistics. (4) (Same as Statistics M222 and Urban Planning M215.) Lecture, three hours. Designed for graduate students. Survey of modern methods used in analysis of spatial data. Implementation of various techniques using real data sets from diverse fields, including neuroimaging, geography, seismology, demography, and environmental sciences. S/U or letter grading.

Regions

282. South America. (4) Seminar, three hours; reading period, two hours. Introduction to main issues in geography of South America, with focus mainly on cultural/historical geographical perspectives on the national period; themes and periods can be adapted to individual interests. S/U or letter grading.

283. Europe. (4) Seminar, two hours; discussion, two hours. Requisite: course 183. May be repeated for credit. S/U or letter grading.

286. Geography of Contemporary China. (4) Seminar, three hours; reading period, two hours. Designed for graduate students. May be repeated for credit. S/U or letter grading.

292. Advanced Regional Geography: Selected Regions. (4) Lecture, three hours; discussion, one hour. Preparation: appropriate upper division regional course. Lecture series devoted to a specific region at discretion of instructor. May be repeated for credit.

Seminars

295. Seminar: Geographic Thought. (4) Discussion, three hours; reading period, two hours. Designed for graduate students. Discussion and study of topics significant to growth of modern philosophy of geography.

C296A. Research Group Seminars: Controversies in Earth System Science. (1) Seminar, two hours. Biweekly seminar to discuss emerging issues and controversies in earth system science. Topics include oscillatory climate phenomena, biogeochemical cycling, biocomplexity, land/atmosphere interactions, paleoclimate, and human-induced environmental change. May be repeated for credit. Concurrently scheduled with course C194A. S/U grading.

296B. Cultural Geography Methods Workshop. (1) Seminar, two hours. Biweekly forum for presentation and discussion of new concepts, theories, and methods at juncture of geography, humanities, and environmental study. Principal focus on landscape, but scope of cultural study within geography also embraced. S/U grading.

296C. Political Geography Working Group. (1) Seminar, two hours. Limited to graduate students. Biweekly forum for analysis of current geopolitics, with emphasis on geographic impacts of recent global events. S/U grading.

296D. Agriculture and Food Studies Colloquium. (1) Seminar, one hour. Current scholarly debates surrounding topics on agriculture and food. Interdisciplinary discussion, with focus on research that explores confluence of production and consumption studies vis-à-vis agriculture and food. Group discussion of recently published work, works-in-progress by participants, and distinguished guest speakers. S/U grading.

Core Courses

297A. History of Modern Geography. (4) Lecture, three hours; reading period, one hour. Evolution of field of geography in 19th and 20th centuries, with emphasis on professionalization of geography and its emergence as modern academic discipline. S/U or letter grading.

297B. Physical Basis of Geography. (4) Lecture, three hours; reading period, one hour. Critical evaluation of formative influences, paradigm shifts, and present challenges of physical geography, illustrated from historical developments and changing research frontiers in geomorphology, climatology, oceanography, hydrology, and soils. S/U or letter grading.

297C. Evolution, Ecology, Environmentalism, and Roots of Modern American Geography. (4) Seminar, three hours; reading period, one hour. Discussion of how contemporaneous development of modern concepts of evolution, ecology, and environmentalism influenced, and were influenced by, development of modern geography as academic discipline. S/U or letter grading.

298A. Philosophical Issues in Geographical Inquiry. (4) Lecture, three hours. Discussion of geographical research within context of philosophical debates concerning the nature of scientific inquiry. S/U or letter grading.

299A. Statistical Methods for Geographic Research. (4) Lecture, three hours; laboratory, two hours. Requisite: course M171. Use of linear models, discriminant functions, and factor analysis to analyze problems in geography. S/U or letter grading.

299B. Geographic Data Visualization and Analysis. (4) Lecture, three hours; laboratory, two hours. Requisites: course 168, Statistics 12. Development of broad base of knowledge and set of skills that foster conduct of high-quality geographic data analysis. S/U or letter grading.

299C. Qualitative Methods and Methodology. (4) Seminar, three hours; laboratory, two hours. Examination of definition and use of qualitative methodology and methods in social-cultural geographic research. Exploration of relationship between methodology and epistemology; review of range of research methods and techniques, including interviewing and focus groups, observation, action research, ethnography, and interpretation of material culture, and consideration of ethical and practical issues of conducting qualitative research. S/U or letter grading.

299D. Research Design in Geography. (4) Lecture, four hours. Introduction to logic of geographic inquiry. Topics include questions surrounding philosophy of science, research design issues, and range of methodologies available to and implemented by geographers to enable students to evaluate geographic literature critically. S/U or letter grading.

299E. Remote Sensing of Environment. (4) (Formerly numbered 269.) Laboratory, three hours; independent study, two hours. Requisite: course 167. Study of aerial photographs and other remote sensing images as tools for geographical research. Particular attention to analysis of landscapes and interpretation of interrelationships of individual features in their physical and cultural complex. S/U or letter grading.

Special Studies

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Teaching College Geography. (2) Seminar, one hour; laboratory, three hours. Classroom practice in teaching, with individual and group instruction on related educational methods, materials, and evaluation. May be repeated for credit. S/U grading.

596. Directed Individual Study or Research. (2 to 8) May be repeated for credit. S/U grading.

597. Preparation for Ph.D. Qualifying Examinations. (2 to 8) Independent study. May be repeated for credit. S/U grading.

598. Research for and Preparation of M.A. Thesis. (2 to 8) Independent study. May be repeated for credit. S/U grading.

599. Research for and Preparation of Ph.D. Dissertation. (2 to 8) Independent study.

GERMANIC LANGUAGES

College of Letters and Science

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Robert S. Kirsner, Ph.D.
Kathleen L. Komar, Ph.D.
John A. McCumber, Ph.D.
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James A. Schultz, Ph.D.
Hans Wagener, Ph.D.

Professors Emeriti

Ehrhard Bahr, Ph.D.
Franz H. Bäuml, Ph.D.
Mariana D. Birnbaum, Ph.D.

Associate Professor

Christopher M. Stevens, Ph.D.

Scope and Objectives

The Department of Germanic Languages offers an extraordinary array of courses in languages, literatures, and cultures. This broad range of studies offers training in specialized fields such as film, linguistics, folklore, and critical theory. Courses prepare students for a variety of careers, including law, business, international relations, academic professions, and publishing.

Undergraduate majors earn a Bachelor of Arts degree. The graduate program offers Master of Arts and Ph.D. degrees. Refer to the Scandinavian Section later in this catalog for information about the degrees in Scandinavian studies.

At all levels of study various specializations are possible. Language, literature, and culture studies are available in Afrikaans, Dutch, and Icelandic, in addition to German. The program also provides opportunity for study, work-study, and internships in a German-speaking country or in a country related to the course of study.

Undergraduate Study

Grammar/Composition Courses

No credit is allowed for completing a less advanced course after successful completion of a more advanced course in Afrikaans, Dutch, German, and Yiddish grammar and/or composition. Students with demonstrated preparation may be permitted to transfer to a more advanced course with consent of the instructor.

German B.A.

The German major is designed for students who seek a solid grounding in the German language, an introduction to the study of linguistics, literature, and cultural studies, and the opportunity to determine their own area of focus.

Preparation for the Major

Required: German 1, 2, 3, 4, 5, 6, or equivalent. Students who have completed one year of college-level German language courses should enroll in course 4. Students who are in doubt as to their level of language proficiency or who are native speakers should consult the language program supervisor.

Transfer Students

Transfer applicants to the German major with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of German.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: German 140 (or 141), 152, 153, 158, six upper division German courses (at least two of which must be at the 150 level or above), and two upper division courses that may be in German or in another Germanic language or in related fields such as history, linguistics, music, philosophy, and political science. Each course must be taken for a letter grade.

Honors Program

To qualify for graduation with departmental honors, students must earn a cumulative grade-point average of 3.6 or better in upper division German courses and a 3.3 overall GPA, and complete German 199 with a grade of A. Contact the departmental honors adviser for procedures, special arrangements, possible exceptions, and other information.

German Minor

To enter the German minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Courses (8 units): German 5 and 6 or equivalent.

Required Upper Division Courses (20 units): German 152, 153, and any three German courses (excluding German literature in translation).

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Germanic Languages Minor

To enter the Germanic Languages minor, students must have an overall grade-point average of 2.0 or better.

Required Upper Division Courses (28 units): Seven courses in any of the following languages and literatures: Afrikaans, Dutch, German (excluding German literature in translation), Scandinavian languages, Yiddish.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Germanic Languages offers Master of Arts (M.A.), Candidate in Philosophy (C.Phil.), and Doctor of Philosophy (Ph.D.) degrees in Germanic Languages and a

Master of Arts (M.A.) degree in Scandinavian (see Scandinavian Section).

Afrikaans

Lower Division Course

40. From Oppressed to Oppressor and Beyond: Literature in Afrikaans from Preapartheid to Post-apartheid Era in English Translation. (5) Lecture, four hours; discussion, one hour. Enforced requisite: English Composition 3 or 3H. Development of all literature in Afrikaans, with special attention to authors and poets who protested apartheid—Brink, Breytenbach, Van Heerden, Jonker, Joubert, Krige, Krog, Leroux, Rabie, Small, and Willemsse. Additional readings by Coetzee, De Lange, Krog, and others on censorship, imprisonment, South African history, and postcolonial literary theory. P/NP or letter grading.

Upper Division Courses

105A. Elementary Afrikaans. (4) Lecture, four hours; language laboratory. Introduction to sister language of modern Dutch and one national language of South Africa. Grammar, practice in listening, speaking, reading, and writing. P/NP or letter grading.

105B. Intermediate Afrikaans. (4) Lecture, four hours; language laboratory. Requisite: course 105A. Grammatical exercises; reading and linguistic analysis of texts from both literary and nonliterary sources. P/NP or letter grading.

135. Introduction to Afrikaans Literature. (4) Discussion, three hours. Requisite: course 105B. Analysis of selected works from founding of Genootskap van Regte Afrikaners in 1875 to present time, including novels by recent writers such as Leroux and Brink, as well as work of poets such as Eybers, Opperman, W.E.G. Louw, Van Wyk Louw, and Breytenbach. P/NP or letter grading.

199. Directed Research or Senior Project in Afrikaans. (4) Tutorial, three hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

596. Directed Individual Study or Research in Afrikaans. (4) Tutorial, to be arranged with faculty member who directs study or research (course section to be identified by two-letter code using initials of sponsoring instructor—see department for I.D. number). May be repeated once. S/U grading.

597. Preparation for Ph.D. Qualifying Examinations. (4) Tutorial, to be arranged with instructor (see department for I.D. number). S/U grading.

Dutch

Lower Division Course

10. Contemporary Dutch Society and Culture: Beyond Rembrandt, Cheese, and Wooden Shoes. (5) (Formerly numbered 100.) Lecture, three hours. Lectures and readings in English. Country known as Holland, or more correctly, The Netherlands (in Dutch: Nederland) has played crucial role in both American history and American current events. It was first country to set up official diplomatic relations with U.S. (in 1782) and is major investor in U.S. and staunch ally of its foreign policy. Piercing of touristia aura surrounding The Netherlands by actively comparing and contrasting contemporary Dutch culture and society with contemporary American culture and society. How life would be different growing up in The Netherlands. Letter grading.

Upper Division Courses

103A-103B. Elementary Dutch. (4-4) Lecture, four hours; language laboratory. Course 103A is requisite to 103B. Introduction to standard language of Netherlands and one of three standard languages of Belgium. Practice in grammar, listening, speaking, reading, and writing. P/NP or letter grading.

103C. Intermediate Dutch. (4) Lecture, four hours; language laboratory. Requisite: course 103B. Grammatical exercises, conversation, reading and analysis of simple texts. P/NP or letter grading.

104A-104B. Accelerated Dutch. (6-6) Lecture, four hours; discussion, one hour; laboratory, two hours. Covers material in courses 103A, 103B, 103C in two terms rather than three. Letter grading.

113. Modern Dutch and Flemish Literature in Translation. (4) Lecture, three hours. Readings and analysis of works by selected authors of Netherlands and northern (Flemish) Belgium such as Boon, Claus, Couperus, Hermans, Mulisch, Multatuli, and Reve and selected poets such as Campert, Gezelle, Gorter, Kloos, Lucebert, Nijhoff, Van Ostaïjen, and Vroman. Letter grading.

120. Introduction to Dutch Studies. (4) Lecture, three hours. Brief review of Dutch grammar. Reading and discussion of selections from contemporary Dutch literature, contemporary Dutch literary criticism, and modern Dutch linguistics. Emphasis on developing reading skill and on acquiring familiarity with and appreciation of scope of 20th-century Neerlandistiek. P/NP or letter grading.

131. Introduction to Modern Dutch Literature. (4) Discussion, three hours. Requisite: course 103B or 120. Selected works of literature of Netherlands and northern (Flemish) Belgium from mid-1850s to present, including novels by such writers as Multatuli, Couperus, Hermans, Mulisch, and Reve and poetry by such groups as symbolist *Beweging van Tachtig* and post-War *Beweging van Vijftig*. P/NP or letter grading.

199. Directed Research or Senior Project in Dutch. (4) Tutorial, three hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

596. Directed Individual Study or Research in Dutch. (4) Tutorial, to be arranged with faculty member who directs study or research (course section to be identified by two-letter code using initials of sponsoring instructor—see department for I.D. number). May be repeated once. S/U grading.

597. Preparation for Ph.D. Qualifying Examinations. (4) Tutorial, to be arranged with faculty member who directs study (see department for I.D. number). S/U grading.

German

Lower Division Courses

1. Elementary German. (4) Lecture, five hours; laboratory, one hour. P/NP or letter grading.

1G. Elementary German for Graduate Students. (4) Lecture, four hours. Preparation for Graduate Division foreign language reading requirement. May not be applied toward degree requirements. S/U grading.

2. Elementary German. (4) Lecture, five hours; laboratory, one hour. Enforced requisite: course 1. P/NP or letter grading.

2G. Elementary German for Graduate Students. (4) Lecture, four hours. Preparation for Graduate Division foreign language reading requirement. May not be applied toward degree requirements. S/U grading.

3. Elementary German. (4) Lecture, five hours; laboratory, one hour. Enforced requisite: course 2. P/NP or letter grading.

3G. German for Graduate Students. (4) Lecture/reading and translation, three hours. Prerequisite: course 2G. Preparation for Graduate Division foreign language reading requirement. Intensive reading and translation of humanities and social sciences texts. May not be applied toward degree requirements. S/U grading.

4. Intermediate German. (4) Lecture, five hours; laboratory, one hour. Enforced prerequisite: course 3. P/NP or letter grading.

5. Intermediate German. (4) Lecture, four hours; laboratory, one hour. Enforced prerequisite: course 4. P/NP or letter grading.

6. Intermediate German. (4) Lecture, four hours; laboratory, one hour. Enforced prerequisite: course 5. P/NP or letter grading.

8. Elementary German: Intensive. (12) Lecture, 15 hours; laboratory, five hours. Intensive basic course in German equivalent to courses 1, 2, and 3. P/NP or letter grading.

10. Intermediate German: Intensive. (12) Lecture, 20 hours; laboratory, four hours. Enforced prerequisite: course 3. Intensive intermediate course in German equivalent to courses 4, 5, and 6. P/NP or letter grading.

12. German Conversation. (4) Discussion, three hours. Enforced prerequisite: course 3. Conversation course designed for intermediate and advanced students who wish to improve their spoken command of German. Topics of current student interest to be used as basis for conversation. P/NP or letter grading.

50A-50B. Great Works of German Literature in Translation. (4-5) Lecture. May not be applied toward completion of major in German. P/NP or letter grading:

50A. Medieval Period through Classicism. (4) Lecture, three hours. Study and analysis of selected masterworks in English translation, including works from earliest period, such as heroic and courtly epic, to authors such as Grimmelshausen, Lessing, Schiller, and Goethe. P/NP or letter grading.

50B. Romanticism to Present. (5) Lecture, three hours; discussion, one hour. Study and analysis of selected masterworks in English translation, including authors such as E.T.A. Hoffmann, Heine, Fontane, Rilke, Kafka, Brecht, Thomas Mann, Hesse, Grass, Böll, and Christa Wolf. P/NP or letter grading.

55. City as Text: German Exile Culture in Los Angeles. (4) Lecture, three hours. Not open for credit to students with credit for former course 55W. Cultural and historical exploration of exile as site of creative activity for German writers and other artists during and after World War II. General questions of cultural migration and cultural transfer to be thematized. P/NP or letter grading.

56. Figures Who Changed World. (5) Lecture, three hours; discussion, one hour. Introduction to strains of German philosophy and political thought that resonated internationally. Use of version of "great man" model of history to move beyond such models in its understanding of how, exactly, intellectual currents actually ferment change in world. P/NP or letter grading.

57. Hollywood and Germany. (5) Lecture/screenings, five hours; discussion, one hour. Examination of images of Germany generated by Hollywood, cultural/historical interface between Hollywood and Germany, and contemporary critiques of long-standing relationship between these cultural sites. Discussion of how and why cultural stereotypes are generated and maintained, and why film is a uniquely powerful tool in ideological discourse. P/NP or letter grading.

58. Knights and Ladies, Sex and Power at Medieval Court. (5) Lecture, three hours; discussion, one hour. Introduction to culture of high medieval court, one of great achievements of European Middle Ages. P/NP or letter grading.

59. Holocaust in Film and Literature. (5) Lecture/screenings, five hours; discussion, one hour. History of Holocaust and its present memory through examination of challenges and problems encountered in trying to imagine its horror through media of literature and film. P/NP or letter grading.

60W. War. (5) Lecture, three hours; discussion, two hours. Enforced prerequisite: English Composition 3 or 3H or English as a Second Language 36. Reflection on cultural history of war—on its significance from anthropological, cultural, and philosophical perspectives rather than from perspective of political and historical gains and losses. Emphasis on World War I, war in which political and military confrontation seemed particularly attuned to sense of confrontationalism and scandal in cultural life. Satisfies Writing II requirement. Letter grading.

61A. Modern Metropolis: Berlin. (5) Lecture, three hours; discussion, one hour. Cultural, political, architectural, and urban history of one of most vibrant and significant cities in world. Exploration of city over 800 years, using innovative mapping tools to understand how Berlin evolved from fortified mercantile town into global city. P/NP or letter grading.

61B-61C-61D. Modern Metropolis. (5 each) Lecture, three hours; discussion, one hour. Historical exploration of major Central European cities and their cultures. P/NP or letter grading. **61B.** Weimar; **61C.** Vienna; **61D.** Prague.

62W. Man and Machine. (5) Lecture, three hours; discussion, two hours. Enforced prerequisite: English Composition 3 or 3H or English as a Second Language 36. Various responses in German culture to challenges presented by technology and science. From Romanticism to critical theory and postmodernism, from Schiller and Nietzsche to Habermas and Wolf, strands of German intellectual tradition provide illuminating contrasts to American context. Satisfies Writing II requirement. Letter grading.

M70. Origin of Language. (5) (Same as Communication Studies M70 and Indo-European Studies M70.) Lecture, three hours; discussion, one hour. Theoretical and methodological issues surrounding origin of language. Topics include evolutionary theory, evolution of man, how language is organized in brain, and science of language, including physiology of speech, phonetics, and comparative reconstruction. Letter grading.

88. Lower Division Seminar. (4) Seminar, three hours. Course of variable content limited to topics of current interest and offered whenever staff member is available. P/NP or letter grading.

Upper Division Courses

100. German History and Culture before 1500. (4) (Formerly numbered 100A.) Lecture, three hours; discussion, one hour. Taught in English. Study of German culture and society from beginning to 1500 as represented in literature, art, and architecture. P/NP or letter grading.

101. German History and Culture, 1500 to 1914. (4) (Formerly numbered 100B.) Lecture, three hours; discussion, one hour. Taught in English. Study of German culture and society as represented in literature, art, music, and architecture from Reformation and invention of printing to start of World War I. P/NP or letter grading.

102. War, Politics, Art. (5) (Formerly numbered 100C.) Lecture, three hours; discussion, one hour. Taught in English. Analysis of interrelationship between politics, social conditions, and arts with respect to war. World Wars I and II and German history to be used as model for principal questions of society and philosophical thinking. P/NP or letter grading.

103. German Film in Cultural Context: Early German Film. (4) (Formerly numbered 102A.) Lecture, two hours; discussion, one hour. Taught in English. Survey of German film between 1919 and 1945. Analysis of technological and stylistic development of film from silent Expressionist films to Nazi propaganda and entertainment films. Film discussions enhanced by interactive media. Letter grading.

104. German Film in Cultural Context: New German Film. (4) (Formerly numbered 102B.) Lecture, two hours; discussion, one hour. Taught in English. Survey of German film since 1960 in its thematic and stylistic diversity. Films authored by Werner Herzog,

Fassbinder, and Margarethe von Trotta juxtaposed with commercial comedies of 1990s. Film discussions enhanced by interactive media. Letter grading.

M105. Tristan, Isolde, and History of Heterosexuality. (4) (Formerly numbered M104.) (Same as Women's Studies M119.) Lecture, three hours. Taught in English. German, French, and English versions of Tristan and Isolde story from Middle Ages to 20th century. Particular attention to relation between representation of heterosexual love in each text and contemporaneous ideas about human sexuality. P/NP or letter grading.

106. Bargaining with Devil. (4) Lecture, three hours. Taught in English. Investigation of how devil's pact has served as metaphor for human's desire to transcend limits of power, human knowledge, and artistic achievement. Readings and viewings include Book of Genesis, historical documents from witchcraft trials, Goethe's *Faust*, romantic stories and fairy tales, and *Rosemary's Baby*. Letter grading.

M107. Love and Sex in German Literary Tradition. (4) (Formerly numbered M108.) (Same as Women's Studies M108.) Lecture, three hours. Taught in English. Study of major literary works that address issues of idealized desire, emotional/sexual boundaries, and development of sexual identity. Letter grading.

108. Nietzsche and Critique of Western Culture. (4) (Formerly numbered 110.) Lecture, two hours; discussion, one hour. Taught in English. Readings that focus on Nietzsche's critique of Christianity, master/slave dynamic, and reciprocal relation between poetry and philosophy. German majors required to complete all readings in German. Letter grading.

109. Jewish Question and German Thought. (4) (Formerly numbered 112.) Lecture, three hours. Taught in English. Analysis of works that represent process of Jewish assimilation, disenfranchisement, and extermination, including authors such as Mendelssohn, Heine, Kafka, Paul Celan, Nelly Sachs, Anne Frank, and others. Letter grading.

110. Special Topics in Modern Literature and Culture. (4) (Formerly numbered 116.) Lecture, three hours. Taught in English. Content varies with instructor and may include works by authors such as Thomas Mann, Rilke, Kafka, Brecht, Christa Wolf, and others. May be repeated for credit. Letter grading.

111. Thomas Mann, Hesse, Böll, and Grass: German Nobel Prize Winners in English. (4) (Formerly numbered 117.) Lecture, three hours. Taught in English. Survey of Nobel Prize-winning German texts with eye for degree to which these authors' visions reflect Nobel's ideals of peace and progress of human race. Texts include *Weavers* (Hauptmann), excerpts from *Buddenbrooks* (Mann), and *Siddharta* (Hesse). Viewing of films based on *Lost Honor of Katharina Blum* and *Tin Drum*. Letter grading.

112. Feminist Issues in German Literature and Culture. (4) (Formerly numbered 118.) Lecture, three hours. Taught in English. Analysis of major issues in German feminism today (e.g., status, creative work, and reception of women writers in various periods such as Romanticism, Fascism, and/or divided/unified Germanies). Letter grading.

113. German Folklore. (4) (Formerly numbered 120.) Lecture, three hours. Taught in English. Survey of various folklore genres in cultural context, including legends, proverbs, and cultural enactments such as carnival. Letter grading.

114. Fairy Tales and Fantastic. (5) (Formerly numbered 122.) Lecture, three hours; discussion, one hour. Taught in English. History and reception of folklore collections in Europe, with particular attention to ideology and influence of Grimms' tales. Interpretation of selected tales and their transformations and appropriation in literature, film, advertising, and pedagogy. P/NP or letter grading.

115. 19th-Century German Philosophy. (4) (Formerly numbered 145.) Lecture, three hours; discussion, one hour. Taught in English. German philosophy, which may generally be characterized as philosophy that takes activity rather than passive subsistence to be fundamental nature of all things, is one of Germa-

ny's greatest gifts to humanity. Exploration of first half of two-century history of German philosophy—period from Kant to Nietzsche, including Hegel, Kierkegaard, and Marx. Letter grading.

116. 20th-Century German Philosophy. (4) (Formerly numbered 147.) Lecture, three hours; discussion, one hour. Taught in English. German philosophy, which may generally be characterized as philosophy that takes activity rather than passive subsistence to be fundamental nature of all things, is one of Germany's greatest gifts to humanity. Exploration of second half of two-century history of German philosophy—period from Nietzsche through Habermas, including Heidegger, Gadamer, Jaspers, and Frankfurt School theorists. Letter grading.

117. German Exile Culture in Los Angeles. (4) (Formerly numbered 114.) Lecture, three hours. Taught in English. Cultural and historical exploration of exile as site of creative activity for German writers and other artists during and after World War II. General questions of cultural migration and cultural transfer to be thematized. P/NP or letter grading.

140. Language and Linguistics. (4) (Formerly numbered 150.) Lecture, three hours. Enforced requisite or corequisite: course 6. Taught in English with German proficiency required. Theories and methods of linguistics, with emphasis on structure of modern standard German, its phonology, morphology, syntax, semantics, and pragmatics. Other topics include diachronic, spatial, and social variation of German (i.e., its historical development, dialectology, and sociolinguistic dimensions). Letter grading.

141. Current Topics in Germanic Linguistics. (4) (Formerly numbered 170.) Lecture, three hours. Enforced requisite: course 152. Taught in English with German proficiency required. In-depth investigation of one topic in field of Germanic linguistics, such as phonetics and phonology, morphology and syntax, semantics and pragmatics, social and spatial variation (i.e., sociolinguistics and dialectology of German), or history of German. May be repeated for credit. Letter grading.

C142. Linguistic Theory and Grammatical Description. (4) (Formerly numbered C172.) Lecture, three hours. Enforced requisite: course 140 or Linguistics 20. Taught in English with German proficiency required. Problems in structure of Dutch and German, considered from theoretical frameworks such as sign-oriented linguistics, functional linguistics, discourse grammar, and cognitive linguistics. Discussion of formal linguistic approaches. Concurrently scheduled with course C238. Letter grading.

150. German Play Production Act I. (5) (Formerly numbered 119A.) Lecture, four hours. Enforced requisite: course 3. Taught in German. Introduction to four German plays (readings variable) and to different types of drama and drama theory. Reading, discussion, and analysis of plays in detail, practice in performing roles in class, and writing of short responses in German. May be repeated for credit. Letter grading.

151. German Play Production Act II. (5) (Formerly numbered 119B.) Lecture, four hours. Requisites: courses 3 (enforced), 150. Taught in German. Staging of German play. Students responsible for various aspects of theater production, including acting and technical jobs (costumes, sets, and programs). Intensive pronunciation practice. Two public performances take place at end of term. May be repeated for credit. Letter grading.

152. Conversation and Composition on Contemporary German Culture and Society I. (4) (Formerly numbered 130A.) Lecture, three hours. Requisite: course 6. Taught in German. Structured around themes as they emerge in contemporary German texts ranging from news magazine articles to literature, with emphasis on speaking and writing proficiency. Presentation software featured. P/NP or letter grading.

153. Conversation and Composition on Contemporary German Culture and Society II. (4) (Formerly numbered 130B.) Lecture, three hours. Requisite: course 6. Taught in German. Structured around themes as they emerge in contemporary German texts

ranging from news magazine articles to literature, with emphasis on speaking and writing proficiency. Presentation software featured. P/NP or letter grading.

154. Business German. (4) (Formerly numbered 132.) Lecture, three hours. Requisite: course 6. Taught in German. Specialized language course that teaches German business administration, practices, and correspondence, with attention to cultural nuances. Ongoing developments in European Union analyzed via newspaper articles and Internet. P/NP or letter grading.

155. Advanced German Language through Cultural History and Current Affairs. (4) (Formerly numbered 134.) Lecture, three hours. Requisites: courses 152, 153. Taught in German. Advanced German language course that juxtaposes cultural history with current affairs to teach complex speaking and writing skills of interpretation, analysis, and criticism. Readings may include selections from Luther, Heine, Freud, and current authors. Students create their own interactive media presentations. Letter grading.

156. Advanced Practical Translation. (5) (Formerly numbered 136.) Lecture, three hours. Requisite: course 155 with grade of B or better. Taught in German. German to English translation of literary, journalistic, and sociocultural texts. Work in technique of translation. Letter grading.

158. Introduction to Study of Literature. (4) Lecture, three hours. Taught in German. Introduction to most important terms and resources of literary analysis to help students develop and improve skills in close and critical reading of literary texts, develop basic research techniques, acquire familiarity with basics of literary and cultural analysis, and find pleasure in pursuit of literary and cultural study. Letter grading.

160. Introduction to German Poetry. (4) (Formerly numbered 140A.) Lecture, three hours. Requisite: course 152 or 153. Taught in German. Close reading of representative examples of German lyric poetry from early as well as recent literary periods, including systematic consideration of poetic conventions and forms, diction, imagery, symbolism, and metrics. Letter grading.

161. Introduction to German Drama. (4) (Formerly numbered 140B.) Lecture, three hours. Requisite: course 152 or 153. Taught in German. Analysis of selected dramatic genres (e.g., tragedy, comedy, one-act play, lyric drama, lyric theater, historical drama, etc.), including systematic review of dramatic forms, techniques, and theories. Texts selected from both contemporary and earlier periods. Letter grading.

162. Introduction to German Narrative Prose. (4) (Formerly numbered 140C.) Lecture, three hours. Requisite: course 152 or 153. Taught in German. Analysis of narrative prose genres (e.g., short story, novella, fairy tales, etc.), including systematic review of narrative forms, techniques, and styles. Texts selected from both contemporary and earlier periods. Letter grading.

163. Project of Enlightenment. (4) (Formerly numbered 142.) Lecture, three hours. Requisite: course 152 or 153. Taught in German. Topics in Enlightenment literature, social history, and culture. Works by Goethe, Lessing, Schiller, Kant, Mozart, and others. Letter grading.

164. Introduction to 19th-Century Studies. (4) (Formerly numbered 144.) Lecture, three hours. Requisite: course 152 or 153. Taught in German. Presentation of major texts from Romanticism to realism. Works by Kleist, Büchner, Heine, Fontane, and others. Letter grading.

165. Introduction to Modern Literature. (4) (Formerly numbered 146.) Lecture, three hours. Requisite: course 152 or 153. Taught in German. Analysis of selected modern works written between 1890 and 1945, including texts by authors such as Thomas Mann, Kafka, Rilke, Brecht, and others. Letter grading.

166. Introduction to Contemporary Literature. (4) (Formerly numbered 148.) Lecture, three hours. Enforced requisite: course 152 or 153. Taught in German. Analysis and discussion of German, Austrian, Swiss, and ex-GDR literatures from 1945 to present.

Examination of writers such as Heinrich Böll, Günther Grass, Friedrich Dürrenmatt, Elfriede Jelinek, and Christa Wolf with view to their specific political and cultural context. Letter grading.

169. Studies in German Literature before 1750. (4) (Formerly numbered 152.) Lecture, three hours. Enforced requisite: course 152 or 153. Taught in German. Readings and analysis of major works from Middle Ages to baroque. Letter grading.

170. Goethe. (4) (Formerly numbered 154.) Lecture, three hours. Enforced requisite: course 152 or 153. Taught in German. Reading and discussion of representative works (except *Faust*) from Goethe's early period through maturity and old age. Letter grading.

171. Goethe's *Faust*. (4) (Formerly numbered 156.) Lecture, three hours. Enforced requisite: course 152 or 153. Taught in German. Detailed interpretation of Goethe's major work, Parts I and II, together with general consideration of other treatments of *Faust* theme in European literature. Letter grading.

172. Romanticism. (4) (Formerly numbered 158.) Lecture, three hours. Enforced requisite: course 152 or 153. Taught in German. Reading and analysis of major works by German Romantics, including Friedrich Schlegel, Novalis, E.T.A. Hoffman, and Eichendorff. Letter grading.

173. Advanced Study of Modern Literature. (4) (Formerly numbered 160.) Lecture, three hours. Enforced requisite: course 152 or 153. Taught in German. Naturalism, Expressionism, and other early 20th-century literary movements and works. Letter grading.

174. Advanced Study of Contemporary Literature and Culture. (4) (Formerly numbered 162.) Lecture, three hours. Enforced requisite: course 152 or 153. Taught in German. Literature after 1945 in German-speaking countries, including issues such as national borders, ethnic identity, gender relations, and commercialization of culture. Letter grading.

187. Undergraduate Seminar. (4) Seminar, three hours. Required of all German majors who are candidates for general secondary instructional credential. Content varies by instructor and may include advanced work in folklore, film, and German studies. Letter grading.

197. Individual Studies in German. (2 to 4) Tutorial, three hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

199. Directed Research or Senior Project in German. (4) Tutorial, three hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

201A. Bibliography, Research Methods, and Scholarly Writing. (4) Lecture, three hours. Introduction to current state of advanced research and analysis of literary and philological materials, with emphasis on bibliographies and such tools of research as reference works, series publications, journals, archives, literary histories, and special attention to online resources. Practical exercises in analysis of sources, compilation and presentation of bibliographies, and writing of research papers. Letter grading.

201C. Theories of Literary Interpretation. (4) Lecture, three hours. Advanced analysis and discussion of various models of literary interpretation and schools of thought such as hermeneutics, psychoanalytic criticism, social historical approaches, semiotics, structuralism, and poststructuralism. Topics vary with instructor. Letter grading.

202A. Middle High German. (4) Lecture, three hours. Introduction to Middle High German language, with particular emphasis on developing facility in read-

ing. Study of grammar, syntax, and vocabulary combined with introduction to poetic forms and cultural context. Letter grading.

202B. Readings in Middle High German Literature. (4) Lecture, three hours. Introduction to medieval German literature and literary history and to use of contemporary theory in study of medieval texts. Continued practice in reading Middle High German, although most texts to be read in modern translation. Letter grading.

204. Early Modern German Literature. (4) Lecture, three hours. Selected readings from 1500 to 1700, with introduction to development of German as modern literary language and to literary genres and cultural models. Impact of Thirty Years' War on German literary production and reception in German baroque. Letter grading.

206. Studies in Enlightenment Literature and Culture. (4) Lecture, three hours. Analysis of major 18th-century German texts from philosophic, social-historical, psychohistorical, and literary perspectives. Letter grading.

207. Weimar Classicism. (4) Lecture, three hours. Reading and interpretation of major works of German classicism. May include problems in reception of classicism by later authors and cultural theorists. Letter grading.

208. Romanticism. (4) Lecture, three hours. Analysis of selected works and theories of German Romantics such as Friedrich Schlegel, Novalis, and Hoffman, with attention to relationship between Romanticism and other periods. Letter grading.

209A. 19th-Century Lyrics. (4) Lecture, three hours. Discussion and analysis of lyric poetry from classic/Romantic period through symbolism. Discussion of changes in genre, form, content, and social implication. Letter grading.

209B. 19th-Century Drama. (4) Lecture, three hours. Analysis of selected dramas and their reception from Kleist to Wagner. Discussion of historical drama, sociopolitical drama, *Volkstheater*, and other forms. Letter grading.

209C. 19th-Century Narrative Prose. (4) Lecture, three hours. Analysis of prose works between Romanticism and naturalism. Discussion of development of literary realism and form of novella. Letter grading.

210A. Naturalism, Symbolism, and Expressionism. (4) Lecture, three hours. Analysis of selected works (poetry, drama, prose) of early modernism from Hauptmann to Kafka. Discussion of sociological spectra and pluralism of styles and forms. Letter grading.

210B. 20th-Century Novel to 1945. (4) Lecture, three hours. Prose works in first half of 20th century as they express war experience, crisis of consciousness, and cultural conflicts between wars, as well as innovations in narrative technique. Letter grading.

211. Postwar Literature. (4) Lecture, three hours. Study of major works by German-speaking authors writing since World War II. Examination of issues such as identity crises, nationalism and divided Germany, gender expectations, and social-political attitudes. Letter grading.

212. Contemporary Literature and Culture. (4) Lecture, three hours. Analysis of current cultural issues and their relation to literary production and interpretation. Topics may include areas such as feminism, postcolonialism, postmodernism, and contemporary theories of textuality. Letter grading.

213. Topics in Literature and Film. (4) Lecture, three hours. With focus on two different modes of cultural representation, examination of topics in German literature and film from Weimar Republic to present. Study of media theory, feminist film theory, and interrelationships between film, literature, and social history. Letter grading.

217. History of German Language. (4) Discussion, three hours. Historical survey of development of standard literary German language from time of Indo-European unity through proto-Germanic, West German-

ic, medieval period, Reformation, baroque period, and Enlightenment until its final codification at end of 19th century. S/U or letter grading.

230. Survey of Theory in Historical Linguistics. (4) Lecture, three hours. Systematic overview of theories of historical linguistics. Letter grading.

231. Gothic. (4) Discussion, three hours. Systematic study of phonology and grammar of Gothic language, with readings in Wulfila's translation of Bible and introduction to history of Goths and their place in development of modern Europe. S/U or letter grading.

232. Old High German. (4) Discussion, three hours. Introduction to earliest phases of German literature, with extensive readings in major documents of that period (750 to 1050). Emphasis on grammatical interpretation of these documents and identification of dialects used in their composition. S/U or letter grading.

233. Old Saxon. (4) Discussion, three hours. Introduction to study of earliest documents in Old Low German. Readings in *Heliand* and study of *Old Saxon Genesis*. S/U or letter grading.

C238. Linguistic Theory and Grammatical Description. (4) Lecture, three hours. Enforced requisite: course 140 or Linguistics 20. Taught in English with German proficiency required. Problems in structure of Dutch and German, considered from theoretical frameworks such as sign-oriented linguistics, functional linguistics, discourse grammar, and cognitive linguistics. Discussion of formal linguistic approaches. Concurrently scheduled with course C142. Graduate students meet as group one additional hour each week and write research papers of greater length and depth. Letter grading.

251. Seminar: Germanic Linguistics. (4) Seminar, three hours. Current topics in synchronic or diachronic linguistics, such as specific issues in generative grammar, sociolinguistics and dialectology, or language contact. Letter grading.

252. Seminar: Historical and Comparative Germanic Linguistics. (4) Seminar, three hours. Topics selected from field of historical German phonology and syntax according to needs and preparation of students enrolled (e.g., West Germanic problem and classification of Germanic languages, development of Germanic verbal and nominal morphology, proto-Germanic syntax). S/U or letter grading.

253. Seminar: Medieval Literature. (4) Seminar, three hours. Investigation of selected topic or particular theoretical issue that arises in study of medieval literature. Letter grading.

256. Seminar: Enlightenment. (4) Seminar, three hours. Selected problems in cultural, literary, and philosophic history. May include modern critiques of Enlightenment thought. Letter grading.

257. Seminar: Age of Goethe. (4) Seminar, three hours. Selected topics in literature and culture between 1775 and 1832, with special emphasis on work of Goethe and Schiller as it relates to philosophic texts such as Hegel's *Phänomenologie des Geistes* or as it relates to historical events such as French and American Revolutions. Letter grading.

258. Seminar: Romanticism. (4) Seminar, three hours. Discussion of specific author or topic from Romantic period, possibly in close connection with course 208. Critical review of secondary works. S/U or letter grading.

259. Seminar: 19th-Century Literature. (4) Seminar, three hours. Discussion of specific author or topic of 19th-century literature, possibly in close connection with course 209A, 209B, or 209C. Critical review of secondary works. S/U or letter grading.

260. Seminar: Modern Period. (4) Seminar, three hours. In-depth analysis of one particular issue in pre-1945 German literature and culture. Letter grading.

261. Seminar: Contemporary Literature. (4) Seminar, three hours. In-depth analysis of one particular issue in post-1945 German literature and culture. Letter grading.

262. Seminar: Germanic Folklore. (4) Seminar, three hours. Detailed investigation of individual aspects of Germanic folklore, with emphasis on problems of theory and method in analysis of folkloric material. Letter grading.

263. Seminar: Literary Theory. (4) Seminar, three hours. Special focus on particular theoretical school or interpretive paradigm. Content varies with instructor. Letter grading.

M264. Topics in Communicative, Cognitive, and Functional Approaches to Linguistic Analysis. (4) (Same as Applied Linguistics M262.) Seminar, three hours. Requisite: course C172 or C238. Readings, discussion, analyses, and validation procedures within sign-based linguistics, cognitive grammar, and discourse-functional approaches to language. Consideration of impact of grammaticalization theory on various nonformal approaches to synchronic linguistics. Discussion of work by Contini-Morava, Diver, Garcia, Goldberg, Janssen, Lakoff, Langacker, and Verhagen, as well as Bybee, Traugott, Hopper, and others. S/U or letter grading.

265. German Philosophy. (4) Seminar, three hours. German philosophical tradition is one of most influential, difficult, and problematic Western world has known. Beginning with Kant's *Critique of Pure Reason* and continuing through Hegel, Marx, Nietzsche, and Heidegger to Arendt and thinkers of Frankfurt school, German philosophers have explored, more deeply and rigorously than any other Western thinkers, nature and limits (if any) of human mental activity. Results have been basic to social, political, and aesthetic theory as well as to philosophy itself. Exploration of thought of one member of that tradition by concentrating yearly on one exemplary text. Letter grading.

M270. Seminar: Literary Theory. (5) (Same as Asian M251, Comparative Literature M294, English M270, French M270, Italian M270, Scandinavian M270, and Spanish M294.) Seminar, three hours. Advanced interdisciplinary seminar to explore philosophical, historical, and critical foundations of literary theory as well as current issues in literary and cultural studies. S/U or letter grading.

M299. Research Resources for European Studies. (2) (Same as French M299, Information Studies M299, Italian M299, Slavic M299, and Spanish M299.) Lecture, two hours. Essentials of library research strategy and effective searching in key print and online resources for European and Russian studies. Through combination of lecture, online demonstration, and hands-on activities in and outside class, students understand how to efficiently use library and databases. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Approaches to Foreign Language Pedagogy. (4) Seminar, one hour; discussion, two hours. Issues include development of current theories of second-language acquisition, effects of these theories on language teaching, psycholinguistics, sociolinguistics, assessment techniques, use of multimedia in foreign language pedagogy, and design of syllabi for basic foreign language courses. S/U grading.

496. Teaching with Technology. (4) Seminar, one hour. Introduction for teaching assistants to technological resources available to them and demonstration of how to incorporate computer-based assignments into curriculum. Discussion of pros and cons of using different types of material both inside and outside classroom, as well as how technology can be used to create teaching portfolios and interactive learning tools. S/U grading.

596. Directed Individual Study or Research. (4) Tutorial, three hours. To be arranged with faculty member who directs study or research. Required research paper must be filed with department chair. S/U grading.

597. Preparation for M.A. Comprehensive Examination or Ph.D. Qualifying Examinations. (4) Tutorial, three hours. To be arranged with faculty member who directs examination preparation. S/U grading.

598. Research for and Preparation of M.A. Thesis. (4 to 12) Tutorial, three hours. To be arranged with faculty member who directs research for and preparation of thesis. S/U grading.

599. Research for and Preparation of Ph.D. Dissertation. (4 to 12) Tutorial, three hours. To be arranged with faculty member who directs study. May be repeated. S/U grading.

Yiddish

Upper Division Courses

101A. Elementary Yiddish. (4) Lecture, four hours. Introduction to grammar; instruction in listening, speaking, reading, and writing skills. P/NP or letter grading.

101B. Elementary Yiddish. (4) Lecture, four hours. Requisite: course 101A. P/NP or letter grading.

101C. Elementary Yiddish. (4) Lecture, four hours. Requisite: course 101B. P/NP or letter grading.

102A. Intermediate Yiddish. (4) (Formerly numbered 104.) Lecture, three hours. Requisite: course 101C. Grammatical exercises, reading and linguistic analysis of texts, conversation. P/NP or letter grading.

102B-102C. Intermediate Yiddish. (4-4) Lecture, three hours. Requisite: course 102A. Course 102B is requisite to 102C. Grammatical exercises, reading and linguistic analysis of texts, conversation. P/NP or letter grading.

121A. 20th-Century Yiddish Poetry in English Translation. (4) Lecture, three hours. Designed for juniors/seniors. Readings in 20th-century Yiddish poetry and drama. P/NP or letter grading.

121B. 20th-Century Yiddish Prose and Drama in English Translation. (4) Lecture, three hours. Designed for juniors/seniors. Readings in 20th-century Yiddish prose. P/NP or letter grading.

121C. Special Topics in Yiddish Literature in English Translation. (4) Lecture, three hours. Varying topics of importance and relevance to Yiddish literary study. Reading and analysis of wide range of 19th- and 20th-century literature. P/NP or letter grading.

130. Introduction to Yiddish Culture and Language through Film. (4) Lecture, three hours. Introduction to Yiddish language and culture, with focus on classic Yiddish films and documentaries as integral tools for accessing culture associated with this heritage language. Viewing and discussion to gain deeper understanding and appreciation of complexity and scope of Yiddish culture and in particular of annihilated Yiddish civilization of 20th century. These films represent most accessible way available to hear Yiddish spoken in fluent, natural manner. P/NP or letter grading.

131A. Modern Yiddish Poetry. (4) Lecture, three hours. Requisite: course 102A. Readings in modern Yiddish poetry. P/NP or letter grading.

131B. Modern Yiddish Prose and Drama. (4) Lecture, three hours. Requisite: course 102A. Readings in modern Yiddish prose and drama. P/NP or letter grading.

131C. Special Topics in Yiddish Literature. (4) Lecture, three hours. Requisite: course 131A or 131B. Varying topics of importance and relevance to Yiddish literary study. Reading and analysis of wide range of 19th- and 20th-century literature. P/NP or letter grading.

197. Individual Studies in Yiddish. (2 to 4) Tutorial, to be arranged. Limited to juniors/seniors. Individual intensive study or more specialized investigation of topics in Yiddish, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

596. Directed Individual Study or Research in Yiddish. (4) Tutorial, to be arranged with faculty member who directs study or research (course section to be identified by two-letter code using initials of sponsoring instructor—see department for I.D. number). May be repeated once. S/U grading.

597. Preparation for Ph.D. Qualifying Examinations. (4) Tutorial, to be arranged with faculty member who directs study (see department for I.D. number). S/U grading.

GERONTOLOGY

*Interdisciplinary Minor
College of Letters and Science*

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Scope and Objectives

The worldwide expansion of the older adult population ensures that issues regarding aging will dominate our environmental, economic, social, political, psychological, and medical concerns and endeavors well into the twenty-first century. The undergraduate minor in Gerontology (1) introduces students to the field, (2) prepares them for advanced academic work, (3) lays the groundwork for careers involving a burgeoning aging population, (4) contributes to increased public awareness of issues regarding aging, and (5) helps students plan more effectively for their own futures as they and their families become older.

Undergraduate Study

The Undergraduate Council of the UCLA Academic Senate suspended admissions to the Gerontology minor effective Fall Quarter 2009. Continuing and transfer students were permitted to declare the minor by the end of Fall Quarter 2009. Students currently in the minor are not affected by the admissions suspension.

Gerontology Minor

To enter the Gerontology minor, students must have an overall grade-point average of 2.0 or better.

Required Upper Division Courses (28 units): Gerontology M140 and six courses from M104C, M104D, M104E, M119O, M119X, M150, Community Health Sciences 90, Psychology M117J, 124G, 195A (only 8 units may be applied toward the minor; fieldwork placements must be approved by the chair of the minor), Women's Studies 185 (only when the special topic is women, health, and aging).

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Gerontology

Upper Division Courses

M104C. Diversity in Aging: Roles of Gender and Ethnicity. (4) (Same as Social Welfare M104C and Women's Studies M104C.) Lecture, four hours. Exploration of complexity of variables related to diversity of the aging population and variability in aging process. Examination of gender and ethnicity within context of both physical and social aging, in a multidisciplinary perspective utilizing faculty from a variety of fields to address issues of diversity. Letter grading.

M104D. Public Policy and Aging. (4) (Same as Social Welfare M104D.) Examination of theoretical models and concepts of the policy process, with application to aging policy. Analysis of decision-making processes that affect aging policy. Description of history of contemporary aging policy. Exploration of current policy issues affecting the elderly. P/NP or letter grading.

M104E. Social Aspects of Aging. (4) (Same as Social Welfare M104E.) Topics include theories of aging, economic factors, changing roles, social relationships, and special populations. Weekly seminars organized around a key aspect of social gerontology. P/NP or letter grading.

M119O. Psychology of Aging. (4) (Same as Psychology M119O.) Requisite: Psychology 115. Designed for juniors/seniors. Aging refers to developmental changes occurring at end stages of life. Some alterations that occur represent improvement, others are detrimental. Examination of impact of aging process on mental phenomena and exploration of ways in which positive changes can be maximally utilized and impact of detrimental alterations minimized. P/NP or letter grading.

M119X. Biology and Behavioral Neuroscience of Aging. (4) (Same as Psychology M119X.) Lecture, three hours. Designed for juniors/seniors. Biologic mechanisms of aging process and its terminal phase, death, have been increasingly studied in recent years. Establishment of what is known experimentally about biology and behavioral neuroscience of aging and evaluation of theories developed to account for this knowledge. P/NP or letter grading.

120. Sex and Aging. (4) Lecture, three hours. Sexuality in aging from psychological, psychobiological, physical, and psychosocial perspectives, with emphasis on differences between females and males concerning physical and social changes that occur with aging and how this impacts on emotional well-being and human sexual response. P/NP or letter grading.

M140. Introduction to Study of Aging. (4) (Same as Psychology M140 and Social Welfare M140.) Lecture, three hours. Designed for juniors/seniors. Perspectives on major features of human aging—biological, social, psychological, and humanistic. Introduction to information on the range of influences on aging to prepare students for subsequent specialization. P/NP or letter grading.

M141. Women, Health, and Aging: Policy Issues. (4) (Same as Health Services CM141 and Women's Studies M141.) Lecture, three hours; discussion, one hour. Preparation: two upper division social sciences courses, two upper division biological sciences courses. Social and economic context of older women's aging, major physical and psychological changes older women experience, delivery of health services to this population, and policies that respond to their health needs. Letter grading.

M142SL. Intergenerational Communication across Lifespan. (4) (Same as Social Welfare M142SL.) Lecture, three hours; fieldwork, one hour. Limited to juniors/seniors. What do you say to your parents in conversation? How do you talk to your grandparents? Does your family talk well to one another as group? How do you communicate well with boss who is 30 years older than you? Individuals of all ages interact with one another, and their interactions have significance throughout their lives. Introduction to psycho-

logical, interpersonal, and societal issues related to intergenerational communication across lifespan. Letter grading.

M150. Sociology of Aging. (4) (Same as Sociology M150.) Lecture, three hours; discussion, one hour. Study of sociological processes shaping definition, experience, and response to aging in contemporary society. Topics include race, class, and gender in aging over life course; interpersonal relations and social worlds of aged; caregiving relations and institutions; professions concerned with aged and aging.

195. Community or Corporate Internships in Gerontology. (4) Tutorial, one hour; internship (approved community setting), eight hours. Requisites: courses M119O or M119X, M140. Limited to juniors/seniors. Internship in applications of gerontology in supervised setting in community agency or business. Students meet on regular basis with sponsor and provide periodic reports of their experience. Culminating report required. May be repeated for credit, but only 8 units may be applied toward minor. Individual contract with supervising placement sponsor required. Information and contracts may be obtained from Gerontology Advising Office, 8631 Franz Hall. P/NP or letter grading.

196. Research Apprenticeship in Gerontology. (2 to 4) Tutorial, three hours per week per unit. Requisites: courses M119O or M119X, and M140. Limited to juniors/seniors. Entry-level research apprenticeship with practical applications of gerontology through research under guidance of faculty mentor. Individual contract required. Information and contracts may be obtained from Gerontology Advising Office, 8631 Franz Hall. P/NP or letter grading.

199A. Directed Research or Senior Project in Gerontology. (2 to 4) Tutorial, to be arranged. Requisites: courses M119O or M119X, and M140. Limited to juniors/seniors. Supervised individual research under guidance of gerontology faculty mentor. Culminating paper required. May not be repeated for credit. Individual contract required. Information and contracts may be obtained from Gerontology Advising Office, 8631 Franz Hall. Letter grading.

199B. Guided Research or Senior Project in Gerontology. (4) Tutorial, to be arranged. Requisites: courses M119O or M119X, and M140. Limited to juniors/seniors. Supervised individual research under guidance of gerontology faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. Information and contracts may be obtained from Gerontology Advising Office, 8631 Franz Hall. P/NP grading.

GLOBAL STUDIES

*Interdepartmental Program
College of Letters and Science*

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<http://www.international.ucla.edu/idps/globalstudies/>

-----, Chair

Faculty Administrative Committee

John A. Agnew, Ph.D. (*Geography*)
Andrew Apter, Ph.D. (*Anthropology, History*)
Elizabeth M. DeLoughrey, Ph.D. (*English*)
Michael Mann, Ph.D. (*Sociology*)
Saloni Mathur, Ph.D. (*Art History*)
Kal Raustiala, Ph.D., J.D. (*Law*)
Allen J. Scott, Ph.D. (*Geography, Public Policy*)
Dominic R. Thomas, Ph.D. (*Comparative Literature,
French and Francophone Studies*)
Daniel S. Treisman, Ph.D. (*Political Science*)

Amy B. Zegart, Ph.D. (*Public Policy*)

Scope and Objectives

The Global Studies major provides undergraduate students with a rigorous interdisciplinary education in the principal issues confronting today's globalized world. The curriculum features three thematic pillars that capture the principal dimensions of the unprecedented depth and breadth of interconnections among nation-states, ethnic and religious groups, and individuals. *Culture and society* courses concentrate on the tensions between local ways of life with deep historical, linguistic, ethnic, and religious roots and today's pressures for transnational cultures and multiple identities, fueled by the communication of ideas and the movement of people all around the world. *Governance and conflict* courses focus on challenges to the nation-state from forms of governance above (regional and global forms of governance) and below (autonomy and secessionist movements) and from security threats beyond interstate warfare (ethnic conflict, terrorism, civil wars). *Markets* courses address the interactions among global, regional, national, and subnational economic processes and market dynamics, their effects on different societies with respect to economic growth, poverty, inequality, and the interactions among market forces, political institutions, and public policy.

The curriculum draws on insights from disciplines across the humanities and social sciences to give students the theoretical and methodological skills and knowledge base necessary to understand this complex and rapidly changing world.

Undergraduate Study

The Global Studies major is a designated capstone major. As students progress through the major, they move from a set of broad themes, theories, and perspectives to a more specialized focus about which they develop a specific research expertise and write a thesis. In completing the capstone, students should demonstrate an appropriate mastery of a specialized area of global studies and a critical understanding of current scholarly concerns, literatures, and debates. They should also be able to identify and analyze primary sources and use those sources and appropriate scholarly literature to design and carry out a research project.

Global Studies B.A.

Capstone Major

Admission

Admission to the Global Studies major is by application only and is highly competitive, with only a limited number of students admitted each year. To be eligible to apply, UCLA students must have completed all nonlanguage preparation for the major courses and one modern foreign language equivalent to level 3 by the end of the term in which they are applying. Any remaining language courses may be completed after students have been accepted

to the major. Each preparation for the major course must be taken for a letter grade, and the UC grade-point average for all preparation courses must be a minimum of 3.25. In addition, students must have earned a grade of B or better in Global Studies 1.

The application period is once per year, and students must apply no later than the end of Fall Quarter of their junior year.

Meeting the above minimums does not guarantee admission to the program. Admission is on a competitive basis, using the above qualifications as minimum standards for consideration.

Global Studies Premajor

Incoming freshman and transfer students may be admitted as Global Studies premajors on acceptance to UCLA.

Global Studies premajors must apply for the major at the end of Fall Quarter of their junior year.

Preparation for the Major

Required: Global Studies 1 with a grade of B or better; one statistics course selected from Political Science 6, 6R, Statistics 10, 11, or 12; demonstrated proficiency equivalent to level 6 at UCLA in one modern foreign language; and five additional courses as follows: (1) one *culture and society* course selected from Anthropology 9, Comparative Literature 1C or 2CW, 1D or 2DW, Ethnomusicology 25, Geography 3, 6, History 2B, or World Arts and Cultures 20, (2) one *governance and conflict* course selected from History 22, Political Science 10, 20, 30, 50, 50R, or Sociology 1, and (3) one *markets* course selected from Economics 1, 2, or Geography 4. The remaining two courses, taken from two separate categories, may be selected from the three lists above. One course from the following list may be applied toward the *culture and society* category: Asian 70C, French 14, 14W, Italian 42A, 42B, Near Eastern Languages 50C, Portuguese M42, M44, Russian 90B, 90BW, Spanish M42, M44. A minimum grade-point average of 3.25 is required in these courses.

Transfer Students

Transfer applicants to the Global Studies premajor with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: one modern world history course, one major world region languages and cultures course, one international politics course, one macroeconomics or microeconomics course, one statistics course, and demonstrated proficiency equivalent to level 3 at UCLA in one modern foreign language.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Global Studies 100A, 100B, and seven elective courses, with at least two from each of the following categories and at least three in one category: (1) *culture and society*—

Anthropology M154Q, Art History C180A, Chicana and Chicano Studies M147, Communication Studies 122, Comparative Literature 100, C173, English 114, Film and Television 110C, French 142, Geography 133, 138, Sociology 151, 154, M162, 191F, Women's Studies M147C, M154Q, M162, World Arts and Cultures 102; (2) *governance and conflict*—Asian American Studies 171A, Geography 140, History 121E, 121F, 135C, Political Science 122A, 138B, 166, Public Policy CM117, Sociology 182; (3) *markets*—Anthropology 153P, Chicana and Chicano Studies M125, Economics 121, 122, 181B, Geography 148, History 131A, International Development Studies M100B, Political Science 124A, M167C, Sociology 183.

After successful completion of Global Studies 100A and 100B, students are expected to attend a summer Global Learning Institute at one of several locations around the world in which they enroll in Global Studies 110A and 110B.

During their senior year, students must also take four capstone courses—Global Studies 191, 194, 199A, and 199B. Courses 199A and 199B culminate in a capstone senior thesis of 35 to 50 pages.

Global Studies Minor

The Global Studies minor offers students a multidisciplinary curriculum in the humanities and social sciences through which they can explore the complex and multifaceted interconnections that characterize the contemporary world. The minor is designed to complement and enrich studies in their major.

To enter the minor, students must (1) be in good academic standing (minimum 2.0 grade-point average) and (2) have completed Global Studies 1 and one course in two of the following three categories: (a) *culture and society*—Anthropology 9, Asian 70C, Comparative Literature 1C or 2CW, 1D or 2DW, Ethnomusicology 25, French 14, 14W, Geography 3, 6, History 2B, Italian 42A, 42B, Near Eastern Languages 50C, Portuguese M42, M44, Russian 90B, 90BW, Spanish M42, M44, World Arts and Cultures 20, (b) *governance and conflict*—History 22, Political Science 10, 20, 30, 50, 50R, Sociology 1, and (c) *markets*—Economics 1, 2, Geography 4.

Required Courses (22 to 25 units): Global Studies 100A, 100B, and one course selected from each of the following three categories: (1) *culture and society*—Anthropology M154Q, Art History C180A, Chicana and Chicano Studies M147, Communication Studies 122, Comparative Literature 100, C173, English 114, Film and Television 110C, French 142, Geography 133, 138, Sociology 151, 154, M162, 191F, Women's Studies M147C, M154Q, M162, World Arts and Cultures 102; (2) *governance and conflict*—Asian American Studies 171A, Geography 140, History 121E, 121F, 135C, Political Science 122A, 138B, 166, Public Policy CM117, Sociology 182; (3) *markets*—Anthropology 153P, Chicana and Chicano Studies 125, Economics 121, 122, 181B, Geography 148, History 131A, International Development

Studies M100B, Political Science 124A, M167C, Sociology 183.

Global Studies minors are highly encouraged to participate in a summer Global Learning Institute. The courses offered, Global Studies 110A and 110B, may be applied toward any two of the elective categories (*culture and society*, *governance and conflict*, and *markets*).

No more than two upper division courses (8 to 10 units) may be applied toward both this minor and a major or minor in another department or program.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Global Studies

Lower Division Course

1. Introduction to Global Studies. (5) Lecture, three hours; discussion, one hour. Introduction to phenomenon of globalization and broad range of cultural, economic, political, and social issues confronting globalized world today. Structured around three thematic categories—culture and society, governance and conflict, and markets—designed to capture principal dimensions of multifaceted connections among nation-states, nongovernmental organizations, ethnic, cultural, and religious groups, and populations around world. P/NP or letter grading.

Upper Division Courses

100A. Globalization: Concepts and History. (5) Lecture, three hours; discussion, one hour. Enforced requisite: course 1. Introduction to concepts and history of globalization, addressing different processes and forms of globalization while attempting to develop methods and theories through which aspects of globalization can be more readily understood. Letter grading.

100B. Globalization: Contemporary Issues. (5) Lecture, three hours; discussion, one hour. Requisite: course 100A. Application of theoretical tools and historical perspective of course 100A to most pressing contemporary issues concerning globalization. Issues include globalization and Americanization; migration, culture, and identity; terrorism and civil war; global and regional governance; global media, entertainment, and communication; and globalization and inequality. Letter grading.

110A. Globalization in Context. (5) Lecture, six hours. Requisite: course 100B. Corequisite: course 110B. Culture, economy, history, and politics of different locations around world and how they are affected by globalization. Field trips included to gain first-hand experience of these processes. Offered in summer only. P/NP or letter grading.

110B. Globalization in Context Research Seminar. (5) Seminar, six hours. Requisite: course 100B. Corequisite: course 110A. Individual research projects on different aspects of globalization process in locations around world. Offered in summer only. P/NP or letter grading.

191. Variable Topics Research Seminars: Global Studies—Senior Seminar. (4) Seminar, three hours. Enforced requisites: courses 110A, 110B. Limited to senior Global Studies majors. Organized on topics basis with readings, discussions, papers, and development of culminating project. May not be repeated for credit. Letter grading.

194. Research Group Seminars: Global Studies. (2) (Formerly numbered 190.) Seminar, two hours. Requisites: courses 110A, 110B. Limited to senior Global Studies majors. Discussion of research meth-

ods regarding various approaches to analysis and evaluation of globalization and current literature in field in preparation for senior thesis. May be repeated for credit. Letter grading.

199A-199B. Directed Individual Research in Global Studies. (2-4) Tutorial, one hour. Limited to senior Global Studies majors. Supervised individual research or investigation under guidance of faculty mentor. Individual contract required. **199A.** Requisite: course 191. Research, discussion, and planning of senior thesis. In Progress grading (credit to be given only on completion of course 199B). **199B.** Requisite: course 199A. Final drafting and submission of senior thesis. Culminating paper of 35 to 50 pages required. Letter grading.

HEALTH SERVICES

School of Public Health

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Frederick J. Zimmerman, Ph.D., *Chair*
Stuart O. Schweitzer, Ph.D., *Vice Chair*

Professors

Kathryn A. Atchison, D.D.S., M.P.H.
Roshan Bastani, Ph.D.
Robert H. Brook, M.D., Sc.D.
E. Richard Brown, Ph.D.
William S. Comanor, Ph.D.
William E. Cunningham, M.D., M.P.H.
Susan L. Ettner, Ph.D.
Jonathan E. Fielding, M.D., M.P.H., *in Residence*
Patricia A. Ganz, M.D.
Lillian Gelberg, M.D.
Neal A. Halfon, M.D.
David E. Hayes-Bautista, Ph.D.
Ronald D. Hays, Ph.D.
Felicia S. Hodge, Dr.P.H.
Robert M. Kaplan, Ph.D.
Clifford Y. Ko, M.D.
Gerald F. Kominski, Ph.D.
Mark S. Litwin, M.D., M.P.H.
Courtney H. Lyder, N.D., G.N.P., F.A.A.N.
Carol M. Mangione, M.D., M.S.H.S.
Marvin Marcus, D.D.S.
Vickie M. Mays, Ph.D.
Jeanne Miranda, M.D., *in Residence*
Jack Needleman, Ph.D.
Alex N. Ortega, Ph.D.
Thomas H. Rice, Ph.D.
Lisa V. Rubenstein, M.D., *in Residence*
Stuart O. Schweitzer, Ph.D.
Martin F. Shapiro, M.D.
Paul R. Torrens, M.D., M.P.H.
A. Eugene Washington, M.D.
Kenneth B. Wells, M.D., M.P.H., *in Residence*
Antronette K. Yancey, M.D., Ph.D.
Frederick J. Zimmerman, Ph.D. (*Fred W. and Pamela K. Wasserman Professor of Health Services*)

Professors Emeriti

Emily K. Abel, Ph.D.
Ronald M. Andersen, Ph.D.
Lester Breslow, M.D., M.P.H.

Associate Professors

Paul C. Fu, Jr., M.D., M.P.H.
Moirá Inkelas, Ph.D.
John W. Peabody, M.D., Ph.D., D.T.M.&H., *in Residence*
Ninez A. Ponce, Ph.D., *in Residence*

Assistant Professors

Dinesh Khanna, M.D., M.Sc.
Arturo Vargas Bustamante, Ph.D.
Hector P. Rodriguez, Ph.D.

Lecturer

Jennifer Wortham, M.P.H., Dr.P.H.

Adjunct Professors

Ellen Alkon, M.D., M.P.H.
Arlene Fink, Ph.D.
Dana P. Goldman, Ph.D.
Farhad A. Hagigi, Dr.P.H., M.B.A., C.M.C., M.P.H.
Diana W. Hilberman, Dr.P.H.
Emmett B. Keeler, Ph.D.
Antonio P. Legorreta, M.D., M.P.H.
William J. McCarthy, Ph.D.
Thomas M. Priselac, M.P.H.
Anthony H. Schiff, J.D.
Elizabeth M. Yano, Ph.D.

Adjunct Associate Professors

Pamela L. Davidson, Ph.D.
Aram Dobalian, Ph.D., M.P.H., J.D.
Geoffrey F. Joyce, Ph.D.
Jeffrey Luck, Ph.D., M.B.A.
Annette Maxwell, Ph.D.
Naderah Pourat, Ph.D.
Richard E. Sinaiko, M.P.H.
Amardeep S. Thind, M.D.

Adjunct Assistant Professors

Beth A. Glenn-Mallouk, Ph.D.
Robert J. Nordyke, Ph.D.
Lori S. Pelliccioni, Ph.D., J.D.
Dylan H. Roby, Ph.D.
Leah J. Vriesman, Ph.D.

Scope and Objectives

The field of health services examines the organization and financing of various activities to prevent and treat disease. This includes programs in both the public and private sectors at all levels—local, state, and federal.

Faculty members come from such diverse fields as economics, management, law, statistics, operations research, planning, medicine, history, sociology, and political science. These diverse backgrounds are harmonized by their devotion to the analysis of problems in the financing and delivery of health services, with focus on populations rather than individual patients.

The Department of Health Services offers both practice-oriented and research-oriented graduate programs. The primary professional degree, the Master of Public Health (M.P.H.), includes training in various aspects of health administration such as policy formulation, health planning, organization, and management. For more advanced professional work, the Dr.P.H. degree offers education in the full scope of public health services and prepares candidates for leadership in community health work at all jurisdictional levels. For information on the M.P.H. and Dr.P.H., see Public Health Schoolwide Programs.

For those interested in careers in research and teaching, the department offers M.S. and Ph.D. degrees in Health Services. These programs maintain close ties with related activities in the Schools of Dentistry and Medicine, including the Robert Wood Johnson Clinical Scholars Program, the Program in Prevention, and the Cancer Control Division. The RAND/UCLA Center for Health Policy Study and the RAND/

UCLA Center for Healthcare Financing Research afford opportunities for joint activities with the RAND Health Sciences Program. Graduates of the academic degree programs pursue careers in universities, as well as in public and private agencies involved in health services research and health policy analysis.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Health Services offers Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Health Services.

Health Services**Upper Division Courses**

100. Health Services Organization. (4) Lecture, four hours; discussion, one hour. Preparation: 4 units of social sciences. Structure and function of American healthcare system; issues and forces shaping its future. P/NP or letter grading.

M110. Ethnic, Cultural, and Gender Issues in America's Healthcare Systems. (4) (Same as Asian American Studies M161.) Lecture, three hours. Designed for juniors/seniors. Introduction to study of gender, ethnicity, and cultural diversity related to health status and healthcare delivery in U.S. Letter grading.

C121. Tobacco: Prevention, Use, and Public Policy. (4) Lecture, four hours. Designed for juniors/seniors. Study of tobacco use and its health consequences, including interplay of historical, biological, sociocultural, political, and economic forces with knowledge, attitudes, and behavior choices of individuals. Introduction to prevention interventions, cessation interventions, anti-tobacco efforts in U.S., and international trends in tobacco use. Concurrently scheduled with course CM221. Letter grading.

140. Foundations of Maternal and Child Health. (4) Seminar, four hours. Introduction to field of maternal and child health, with focus on major issues affecting health and well-being of children and families over life course. Emphasis on health, prevention, and supportive programs at different stages of child's life; application of life course health development framework to understand health disparities and implications for policy and practice. Letter grading.

CM141. Women, Health, and Aging: Policy Issues. (4) (Same as Gerontology M141 and Women's Studies M141.) Lecture, three hours; discussion, one hour. Preparation: two upper division social sciences courses, two upper division biological sciences courses. Social and economic context of older women's aging, major physical and psychological changes older women experience, delivery of health services to this population, and policies that respond to their health needs. Concurrently scheduled with course CM241. Letter grading.

197. Individual Studies in Health Services. (2 to 4) Tutorial, four hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200A-200B. Health Systems Organization and Financing. (4 to 6 each) Lecture, four to six hours; discussion, two hours. Limited to graduate health services students. In-depth analysis of health services systems in U.S., using relevant theories, concepts, and models. S/U or letter grading.

M202. Qualitative Research Design and Methodology for Indigenous Communities. (5) (Same as American Indian Studies M202 and Nursing M221.) Seminar, three hours. Introduction to some key theoretical themes in American Indian studies and exploration of methods that can be used to incorporate them in research on American Indian cultures, societies, languages, and other issues. Quantitative methods (design, appropriate use), with emphasis on qualitative research methods, ethics, and special considerations in conducting research in American Indian country. Design of research and exploration of feasibility of researching topics. Letter grading.

M204A-M204B-M204C. Seminars: Pharmaceutical Economics and Policy. (1-1-2) (Same as Economics M204L-M204M-M204N.) Seminar, three hours every other week for three terms. Requisites: course M236, Economics 201A, 201B, 201C. Limited to graduate public health and economics students. Various topics in economics of pharmaceutical industry, including rates of innovation, drug regulation, and economic impact of pharmaceuticals. In Progress (M204A, M204B) and S/U or letter (M204C) grading.

205. Pharmaceutical Policy. (4) Lecture, three hours. Policy issues pertaining to pharmaceutical sector. Topics include determinants of expenditures on drugs, price setting in industry, health insurance coverage for pharmaceuticals, and research and development process. Letter grading.

206. Latino Health Policy: Theory, Method, and Data. (4) Lecture, three hours. Theory, method, and data pertaining to Latino health policy issues. Topics include minority health disparity model, theories on Latino culture, issues on communicable diseases, immigration, assimilation, and physician supply. Letter grading.

207. Current Topics in Health Services: Practice and Policy Perspectives. (2) (Formerly numbered 207A-207B-207C.) Seminar, two hours. Required of Dr.P.H. students. Examination and discussion of current health services topics in various practice sectors, with focus on organizational leadership and direction in addressing these issues. Journal club discussions of relevant scientific literature, presentations of dissertation work by advanced Dr.P.H. students, and interactive lectures/discussions by professionals in public health practice and healthcare management. S/U or letter grading.

214. Measurements of Effectiveness and Outcomes of Healthcare. (4) Lecture, three hours. Requisites: courses 200A, 200B, M422, Biostatistics 100A. Historical perspective for development of health status measures and their utilization in assessment of outcomes and effectiveness in medical care. Review of current methods in context of current research and practice. Letter grading.

CM221. Tobacco: Prevention, Use, and Public Policy. (4) (Same as Community Health Sciences M223.) Lecture, four hours. Designed for juniors/seniors and graduate students. Study of tobacco use and its health consequences, including interplay of historical, biological, sociocultural, political, and economic forces with knowledge, attitudes, and behavior choices of individuals. Introduction to prevention interventions, cessation interventions, anti-tobacco efforts in U.S., and international trends in tobacco use. Concurrently scheduled with course C121. Letter grading.

231. History of Public Health. (4) Discussion, three hours. Designed for doctoral students. Emphasis on topics which illuminate current issues in public health policy. Discussion of historical perspectives on healthcare providers, healthcare institutions, healthcare reform movements, public health activities, childbirth, and AIDS. S/U or letter grading.

232. Governmental Health Services and Trends. (4) Lecture, four hours. Preparation: two upper division social or behavioral sciences courses. Requisite: course 100. Systematic analysis of interface between organized programs of personal health services and governmental agencies at all jurisdictional levels. Study of changing relationships between traditional public health and newer medical care and quality control functions. S/U or letter grading.

M233. Health Policy Analysis. (4) (Same as Community Health Sciences M252.) Lecture, three hours. Requisites: courses 100 or 200A, M236, M287. Conceptual and procedural tools for analysis of health policy, emphasizing role of analysis during various phases of lifecycle of public policy. Letter grading.

234. Health Services Organization and Management Theory. (4) Lecture, four hours. Preparation: two upper division social sciences courses. Requisite: course 100. Application of contemporary organization and management theory to systems that provide personal healthcare services. Environmental characteristics, missions/goals, structure, and processes of health services organizations. S/U or letter grading.

235. Law, Social Change, and Health Service Policy. (4) Lecture, four hours. Preparation: two upper division political science or sociology courses. Requisite: course 100. Legal issues affecting policy formulation for environmental, preventive, and curative health service programs. S/U or letter grading.

M236. Microeconomic Theory of Health Sector. (4) (Same as Public Policy M268.) Lecture, four hours; discussion, two hours. Preparation: intermediate microeconomics. Requisite: Biostatistics 100A. Microeconomic aspects of healthcare system, including health manpower substitution, choice of efficient modes of treatment, market efficiency, and competition. Letter grading.

237A. Special Topics in Health Services Research Methodology. (6) Lecture, four hours; discussion, two hours. Requisite: Biostatistics 200A. Approaches to conceptualization, modeling, design, literature reviews, sampling, data collection, and research. Development of health services research proposal required. Letter grading.

237B. Special Topics in Health Services Research Methodology. (6) Lecture, four hours; discussion, two hours. Requisites: Biostatistics 200A, and 200B or 201. Introduction to multivariate analysis techniques in health services research. Model specification and estimation, regression diagnostics, variable transformations, instrumental variables. Application of statistical software using large-scale national database. Letter grading.

237C. Issues in Health Services Methodologies. (6) Lecture, four hours; discussion, two hours. Requisites: courses 237A, 237B, Biostatistics 200A, 200B (or 201). Designed for doctoral students. Intended to train students in statistical and economic methods used in health services research, with focus on practical application of advanced regression models. Letter grading.

240. Healthcare Issues in International Perspective. (4) Lecture, four hours. Preparation: two health administration courses, two upper division social sciences courses. Analysis of crucial issues in healthcare; manpower policy, economic support, health facilities, patterns of health service delivery, regulation, planning, and other aspects of healthcare systems probed in settings of European welfare states, developing nations, and socialist countries. S/U or letter grading.

CM241. Women, Health, and Aging: Policy Issues. (4) (Same as Social Welfare M290D.) Lecture, three hours; discussion, one hour. Preparation: two upper division social sciences courses, two upper division biological sciences courses. Social and economic context of older women's aging, major physical and psychological changes older women experience, delivery of health services to this population, and policies that respond to their health needs. Concurrently scheduled with course CM141. Letter grading.

M242. Determinants of Health. (4) (Same as Community Health Sciences M232.) Lecture, three hours; discussion, one hour. Designed for graduate students. Critical analysis of models for what determines health and evidence for social, economic, environmental, genetic, health system, and other factors that influence health of populations and defined subgroups. Letter grading.

247. Research Topics in Health Economics. (4) Lecture, four hours. Requisites: courses 100, M236. Seminar in economic analysis of current health services issues. Critical examination of studies pertaining to health manpower, healthcare costs and controls, diffusion of technology, and cost-benefit analysis of health programs. S/U or letter grading.

249A-249Z. Special Topics in Health Services. (2 to 4 each) Hours to be arranged. Requisites for each offering announced in advance by department. Advanced seminars covering current issues and special topics in health policy, health financing, and organization and administration of health services. Sections offered on regular basis, with topics announced in preceding term. May be repeated for credit with topic change:

249D. Principles of Organization Leadership: Applications in Public Health and Welfare. (4) Lecture, three hours; discussion, three hours. Designed for graduate students. Examination of principles and models of organization leadership, including presentation by current leaders in the fields of health and welfare. Theories and empirical investigations of leadership qualities. Letter grading.

M249E. Advanced Topics in Health Economics. (4) (Same as Public Policy M266.) Seminar, four hours. Requisites: courses 200A, 200B, M236. Advanced treatment of number of topics in health economics, including mental health economics, pharmaceutical economics, and relationship between labor supply, welfare, and health. Letter grading.

249F. Quality Assessment and Assurance. (4) Seminar, four hours. Preparation: one health services or epidemiology course. Requisites: course 100, Biostatistics 100A, Epidemiology 100. Fundamental issues in quality assessment, quality assurance, and measurement of health status. S/U or letter grading.

249G. Introduction to Decision Analysis and Cost-Effectiveness Analysis. (4) Lecture, four hours. Requisites: courses 200A, 200B. Techniques to assess broad spectrum of medical technologies: therapeutic and diagnostic tests and procedures, clinical practice patterns, public health interventions, and pharmaceuticals. Demonstration of how decision analysis provides basic framework for conducting various economic evaluations. Letter grading.

249H. Current Research Issues. (2 to 4) Discussion, two hours. Designed for doctoral students. Review of articles in health services journals nominated as the best published during 1990. Analysis of articles to determine contribution to theory, methods, and/or implications for management or policy in health services organizations or health services as a field. S/U or letter grading.

249I. Seminar Series. (2 to 4) Seminar, two hours. Designed for doctoral students. Presentation of proposed or ongoing research projects by faculty and students, with discussion to determine relevant methodological and policy issues, as well as to offer constructive criticism. S/U or letter grading.

249K. Health Care Practice Guidelines, Variations in Care, and Patient Outcomes. (4) Lecture, three hours. Requisites: courses 200A, 200B, M422, Biostatistics 100A, 100B. Designed for graduate students. Participation of students in critical review and discussion of selected papers dealing with course topics, including small and large area variations in care, and development and implementation of clinical guidelines. Emphasis on implications for health policy. Letter grading.

M249L. Ethical Issues in Public Health. (4) (Same as Community Health Sciences M249L.) Lecture, four hours. Requisites: courses 200A, 200B. Case conferences, based on real-life experience, focus on ethical issues in health services organization and manage-

ment, including ethical issues related to conflict of interest, quality of care, health insurance selection, choice of drugs, reproductive rights, AIDS, and resource allocation. Letter grading.

249M. Review of Current Health Services Management Literature. (2) Lecture, two hours. Designed to help students remain current on recent developments in health services management and to place these current developments in proper context of academic research and theory. Letter grading.

249N. Accessing, Analyzing, and Presenting Healthcare Management Data. (2) Lecture, two hours. Designed to provide first-year M.P.H. health professional students with basic skills, and acquisition and quantitative analysis of data for healthcare management, as well as written and oral presentation of those results. Letter grading.

249O. Tobacco and Public Policy. (4) Lecture, four hours. Information and analysis of principal issues in tobacco control. As administrators, researchers, and activists in field of tobacco control, professionals in all specialties of public health should be fully informed on strategies to combat worldwide tobacco epidemic. Letter grading.

M249Q. Editorial Board Apprenticeship. (2) (Formerly numbered 249Q.) (Same as Psychiatry M210.) Seminar, two hours. Designed for postdoctoral fellows and advanced Ph.D. students. Participation in peer review process for academic journal, *Health Psychology*, with consideration of interface between behavioral science, health, and medicine. Reading and discussion of submissions and advising of editor on suitability for full review. S/U or letter grading.

249R. Cancer Prevention and Control Research. (2) Seminar, two hours. Limited to graduate students. Presentations by faculty members and outside speakers, as well as students, on research topics in cancer prevention and control as well as career development issues such as grant writing, scientific review process, research funding, and other academic issues. Presentation of student research in progress as well as solicitation of feedback from class regarding grant proposals, manuscript submissions, and future directions for research. Possible reviews of assigned articles, with focus on particular topics in cancer prevention and control. S/U or letter grading.

249S. Introduction to Science of Implementing Evidence-Based Practice. (4) Seminar, four hours. Requisites: courses 200A, 200B. Designed to provide basic understanding of science of implementing evidence-based practice. Through series of didactic teaching and interactive case discussions, introduction to integrated framework to understand key issues related to implementing evidence-based practice and set of tools to apply evidence base to improving healthcare quality. Guest lecturers included who are nationally recognized experts in topic content areas. Interactive discussion and case analyses based on materials closely related to lecture material. S/U or letter grading.

249T. Advanced Topics in Decision Analysis and Cost-Effectiveness Analysis. (4) Lecture, four hours. Requisite: course 249G. How to conduct uncertainty analyses, understand methods used to construct quality-adjusted life years (QALYs), conduct Markov analyses, critically analyze large-scale published cost-effectiveness analyses (CEAs), effectively present strengths and limitations of published CEAs to peers, and use advanced features of TreeAge software to construct and analyze CEA models, including Markov models. Letter grading.

251. Quality Improvement and Informatics. (4) Lecture, four hours. Requisites: course 100, Biostatistics 100A. Introduction to concepts of healthcare quality measurement, process improvement, and information systems, as well as organizational aspects of implementing them. Letter grading.

M252. Medicare Reform. (4) (Same as Public Policy M267.) Lecture, three hours; outside study, nine hours. Designed for graduate students. Analytical and managerial skills learned earlier to be used to analyze problems with existing medicare program and to develop

specific options for reforming features of program to accommodate coming pressures generated by retirement of baby-boom generation. Letter grading.

M255. Obesity, Physical Activity, and Nutrition Seminar. (4) (Same as Community Health Sciences M234.) Seminar, three hours; outside study, one hour. Designed for graduate students. Multidisciplinary introduction at graduate level to epidemiology, physiology, and current state of preventive and therapeutic interventions for obesity in adults and children, including public health policy approaches to healthy nutrition and physical activity promotion. S/U or letter grading.

260A-260B. World Health. (2-2) Lecture, two hours. Designed for graduate students. Overview of world health, with emphasis on healthcare outside the U.S. Key areas include burden of infectious diseases, health economics, and impact of healthcare policy on healthcare delivery. In Progress (260A) and letter (260B) grading.

265. Challenges in Clinical Health Services Research. (4) Lecture, four hours. Requisites: courses 200A, 200B. Designed to prepare students for challenges involved in conducting health services research on clinical topics and populations. Topics include formulating appropriate questions, identifying sources, mechanism of conducting field studies, identifying funding sources, writing grants, and publishing findings. S/U or letter grading.

266A-266B. Community-Based Participatory Health Research: Methods and Applications. (4-4) Lecture, one hour; discussion, one hour; fieldwork, two hours. Limited to clinical scholars fellows. Mentoring of field experiences with introduction to critical issues in conducting research in community settings. Review of assignments, interventions, and evaluation designs for community settings and discussion of practical issues in partnering with communities. Letter grading.

M269. Healthcare Policy and Finance. (4) (Same as Public Policy M269.) Seminar, three hours; outside study, nine hours. Exploration of demand for health insurance, policies for public insurance (Medicaid and Medicare), uninsured, and health insurance reform. Examination of effects of managed care on health and costs, consumer protection movement, and rise of competitive healthcare markets. Letter grading.

M274. Health Status and Health Behaviors of Racial and Ethnic Minority Populations. (4) (Same as Psychology M274.) Lecture, two hours; discussion, one hour. Limited to graduate students. Overview of physical and mental health behaviors and status of major racial/ethnic groups in the U.S. Where appropriate, discussion of international issues as well. S/U or letter grading.

286. American Political Institutions and Health Policy. (4) Lecture, three hours; discussion, one hour. To effectively participate in policy process as analyst, policymaker, advocate, or citizen, it is necessary to understand institutional and political context within which policy is made. Introduction to federal and state policy-making, with focus on health policy. Discussion of federalism and constitutionalism. Examination of stakeholders, public, interest groups, and nature of issue space for health policy. Structure and process of political institutions at federal level, Congress, President, executive agencies, courts, and administrative law. State responsibilities and federal/state relations. How analysis enters policy process with examination of roles of federal analytic agencies and private research and advocacy groups. Letter grading.

M287. Politics of Health Policy. (4) (Same as Community Health Sciences M287.) Lecture, three hours; discussion, one hour. Requisites: courses 200A and 200B, or Community Health Sciences 210. Examination of politics of health policy process, including effects of political structure and institutions; economic and social factors; interest groups, classes, and social movements; media and public opinion; and other factors. Letter grading.

288. Role and Impact of Technology on Health Services. (4) Lecture, four hours. Examination of role and impact of technology on health services in the U.S. from point of view of system itself. Exploration of various types of technologies for their policy, economic, and organizational impact. S/U or letter grading.

289. Healthcare Disparities. (4) Seminar, three hours. Limited to graduate students. Exploration of what constitutes and explains disparity in healthcare. Emphasis on understanding history of disparities in U.S. to understand current state of disparities, and on evaluating effectiveness of ongoing strategies to eliminate them, such as increasing insurance coverage and delivery of culturally competent healthcare. Examination of sociological models that explain disparities in healthcare and evaluation and expansion on these models. Letter grading.

M290. Evolving Paradigms of Prevention: Interventions in Early Childhood. (4) (Same as Community Health Sciences M237.) Seminar, three hours; fieldwork, one hour. Designed for graduate students. Introduction to use of early childhood interventions as means of preventing adverse health and developmental outcomes. Concepts of developmental vulnerability, approaches to assessment, models of service delivery, evaluation and cost-benefit issues, funding, and other policy issues. Letter grading.

400. Field Studies in Health Services. (2 or 4) Lecture, three hours. Preparation: summer internship. Required of all graduating M.P.H. students. Continuation of summer placement in organizations for delivery, financing, and evaluation of health services. Preparation of consulting report based on organizational problem or project from summer internship. Exposure to selected professional development issues. Letter grading.

401. Public Health Informatics. (4) Lecture, three hours. Preparation: general familiarity and understanding of basic information technologies. Recommended requisite: course 251. Introduction to field of public health informatics and examination of impact of information technology on practice of public health. Entire process, from systems conceptualization and design to project planning and development to system implementation and use. Letter grading.

403. Healthcare Financial Accounting. (4) Lecture, four hours. Introduction to basic concepts of accounting, providing basis for understanding of language of business. Letter grading.

M411. Issues in Cancer Prevention and Control. (4) (Same as Community Health Sciences M411.) Lecture, four hours. Designed for juniors/seniors and graduate students. Introduction to causes and characteristics of cancer epidemic, cancer control goals for nation, and interventions designed to encourage smoking cessation/prevention, cancer screening, and other dietary, psychosocial, and lifestyle changes. Letter grading.

M420. Children with Special Healthcare Needs: Systems Perspective. (4) (Same as Community Health Sciences M420 and Social Welfare M290.) Lecture, three hours; fieldwork, one hour. Examination and evaluation of principles, policies, programs, and practices that have evolved to identify, assess, and meet special needs of infants, children, and adolescents with developmental disabilities or chronic illness and their families. Letter grading.

M422. Practices of Evaluation in Health Services: Theory and Methodology. (4) (Same as Sociology M402.) Lecture, four hours. Requisites: courses 200A, 200B. Introduction to evaluation of health services programs and policies. Exposure to basic theoretical concepts and specific evaluation methodologies and designs. Letter grading.

M428. Child and Family Health Program Community Leadership Seminar. (2) (Same as Community Health Sciences M428.) Seminar, two hours. Designed for graduate students. Examination of characteristics of community-based organizations (CBOs) and role of leadership in decision-making process involved in major issues facing maternal and child health in Los Angeles County. Focus on specific leadership competencies that are or should be employed by orga-

nizations effective in shaping maternal and child health programs and policies (or any population-level policies and programs). Leaders from CBOs in Los Angeles meet with students, comment on their practicum experiences, and underscore community leadership concepts demonstrated by those CBOs. S/U or letter grading.

430. New Developments in E-Health and Internet. (4) Lecture, four hours. Introduction of new technologies in healthcare e-commerce/Internet/new media area, with emphasis on general background, review of applications, and discussion of organizational and managerial issues dealing with successful use and implementation of technologies. S/U or letter grading.

431. Organizational Behavior and Human Resources in Healthcare Organizations. (4) Lecture, four hours. Managerial skills and behaviors applied to components of organizations at several levels: individual, interpersonal, group, intergroup, and system. Core human resources skills required by managers. Unique features of health services organizations stressed as applications are presented. Letter grading.

432. Management of Healthcare Delivery Organizations. (4) Seminar, four hours. Preparation: summer internship, work experience in health services. Readings, case analyses, and term papers concerned with operations, performance management, and service quality of healthcare delivery institutions. S/U or letter grading.

433. Health Services Organization Policy and Strategy. (4) Lecture, three hours; discussion, one hour. Requisites: courses 200A, 200B, 234, M236, Biostatistics 100A, Management 403. Conceptual, analytical, and technical aspects of policy and strategy formulation in health services organizations. Special attention to structure and dynamics of competitive markets, corporate-level strategic planning and marketing, managerial ethics and values, organizational creativity/innovation. Letter grading.

436. Healthcare Financial Management. (4) Lecture, four hours. Requisites: courses 234, 403. Application of financial management and accounting principles to healthcare facilities, including unique financial characteristics of healthcare facilities, third-party reimbursement, cost finding and rate setting, operational and capital budgeting, auditing, and risk management. S/U or letter grading.

437. Legal Environment of Health Services Management. (2) Lecture, two hours. Requisites: courses 200A, 200B. General survey of legal aspects of health services management, including governance, agency, informed consent, medical malpractice, and contracts. S/U or letter grading.

438. Issues and Problems of Local Health Administration. (4) Lecture, three hours. Preparation: one health services course. Requisites: course 100, Epidemiology 100. Overview of administrative issues currently faced by local health departments, including providing public health programs during fiscal constraint, quality improvement, interagency relationships and partnerships, and political and public interactions. Letter grading.

439. Dental Care Administration. (4) Lecture, three to four hours. Requisites or corequisites: Biostatistics 100A, Epidemiology 100. In-depth examination of several specific dental care policy issues: manpower, relationship of treatment to disease, national health program strategies, and evaluation mechanisms. Letter grading.

440A. Health Information Systems: Organization and Management. (4) Lecture, two hours; laboratory, three hours. Requisites: courses 200A, 200B. Principles of and systems related to organization and management of a health facility's health information system. Letter grading.

440B. Health Information Systems: Organization and Management. (4) Lecture, two hours; laboratory, three hours. Requisite: course 440A. Health and administrative research using clinical records. Principles of planning for routine and special studies. Individual investigation in methods of obtaining and processing data to meet needs of programs in institution and

agency. Introduction to principles of medical auditing; analysis of medical and health services. S/U or letter grading.

442. Managed Care. (4) Lecture, four hours. Requisites: courses 200A, 200B. Position of managed care in the U.S. and how it functions. Introduction to important technical and organizational developments. Exploration of changes in organization and delivery of health care as result of growth of managed care. Letter grading.

445. Healthcare Marketing. (2 to 4) Lecture, two hours. Requisites: courses 200A, 200B. Introduction to concepts of healthcare marketing. Exploration of principles of market-driven decision-making process. Examination of development of key elements in annual marketing process and of consumer, competitor, company analysis, market segmentation, and target markets. Letter grading.

M449A-M449B. Child Health, Programs, and Policies. (4-4) (Same as Community Health Sciences M436A-M436B.) Lecture, four hours. Requisite: course 100. Course M449A is requisite to M449B. Examination of history of child health policy trends and determinants of health, structure, and function of health service system; needs, programs, and policies affecting especially at-risk populations. Letter grading.

450. Healthcare Financial Applications. (4) Lecture, four hours. Requisites: courses 200A, 200B. Study of healthcare financial management, including variables of cost of funds, availability of physicians to provide necessary patients, efficiency of operations, and legal constraints. S/U or letter grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. No more than 8 units may be applied toward master's degree minimum total course requirement; may not be applied toward minimum graduate course requirement. S/U grading.

596. Directed Individual Study or Research. (2 to 8) Tutorial, to be arranged. Limited to graduate students. Individual guided studies under direct faculty supervision. Only 4 units may be applied toward M.P.H. and M.S. minimum total course requirement. May be repeated for credit. S/U or letter grading.

597. Preparation for Master's Comprehensive or Doctoral Qualifying Examinations. (2 to 12) Tutorial, to be arranged. Limited to graduate students. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

598. Master's Thesis Research. (2 to 8) Tutorial, to be arranged. Only 4 units may be applied toward M.P.H. and M.S. minimum total course requirement; may not be applied toward minimum graduate course requirement. May be repeated for credit. S/U grading.

599. Doctoral Dissertation Research. (2 to 12) Tutorial, to be arranged. May not be applied toward any degree course requirements. May be repeated for credit. S/U grading.

HISTORY

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Peter Baldwin, Ph.D.
Ivan T. Berend, Ph.D.
Ruth H. Bloch, Ph.D.
Robert P. Brenner, Ph.D.
Brian P. Copenhaver, Ph.D. (*Steven F. and Christine L. Udvar-Hazy Professor*)
Soraya de Chadarevian, Ph.D.
Ellen C. DuBois, Ph.D.
John Duncan, Ph.D.
Christopher Ehret, Ph.D.
Caroline C. Ford, Ph.D.
Robert G. Frank, Jr., Ph.D.
Saul P. Friedlander, Ph.D. (*1939 Club Professor*)
Patrick Geary, Ph.D.
James L. Gelvin, Ph.D.
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Juan Gómez-Quiñones, Ph.D.
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Russell Jacoby, Ph.D., *in Residence*
Sanford M. Jacoby, Ph.D. (*Howard Noble Professor of Management*)
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R. Bin Wong, Ph.D.
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Mary A. Yeager, Ph.D.

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Kathryn Bernhardt, Ph.D.
Kees W. Bolle, Ph.D.
Giorgio Buccellati, Ph.D.
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Merrick Posnansky, Ph.D.
Richard H. Rouse, Ph.D.
Damodar R. SarDesai, Ph.D. (*Navin and Pratima Doshi Professor Emeritus of Indian History*)
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Richard Weiss, Ph.D.
Robert Wohl, Ph.D.
Stanley A. Wolpert, Ph.D.

Associate Professors

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Ra'anan S. Boustan, Ph.D.
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Kelly Lytle Hernández, Ph.D.
Frank Tobias Higbie, Ph.D.
Vinay Lal, Ph.D.
Ghislaine E. Lydon, Ph.D.
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Mary Terrall, Ph.D.
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Craig B. Yirush, Ph.D.

Senior Lecturer S.O.E.

S. Scott Bartchy, Ph.D.

Lecturer

Mary F. Corey, Ph.D.

Adjunct Professor

Robert C. Ritchie, Ph.D.

Scope and Objectives

History is the study of the past of our own society and how it emerged out of the traditions that produced it. At the same time, self-knowledge for students of history comes not only from self-discovery, but from a comparison of their own tradition and experience with those of others. It is only by studying the history of other civilizations and cultures that we can hope to gain perspective on our own.

The course offerings in history at UCLA are designed to bring about an understanding of the forces that have shaped the many cultures of this country and the world. UCLA has one of the largest, most distinguished, and most diverse history faculties in the country. Its main emphasis is on the many aspects of social history, but intellectual, cultural, and political history are also strongly represented.

Of all undergraduate majors, History is probably the most flexible and far-reaching. Leading to a Bachelor of Arts degree, it is excellent preparation for a wide variety of careers—law, teaching, business, the communications media, public services, and medicine.

The graduate program leads to the Ph.D. degree in History (a master's degree may be earned in the process of completing Ph.D. requirements). Traditionally, the M.A. and Ph.D. in History have led to careers in high school, college, and university teaching. Increasingly, they are also being put to use in government service, international business, museum and archival work, and journalism.

Undergraduate Study

The History major is a designated capstone major. Undergraduate students take a capstone seminar in which they demonstrate mastery of a specialized area of history and a critical understanding of current scholarly concerns, literature, and debate, then design and complete a research project using those primary sources and literature.

History B.A.

Capstone Major

The History Department's undergraduate program consists of 16 courses in history (six lower division—the Preparation for the Major, including the premajor requirements; 10 upper division—the Major). Each course must be taken for a letter grade.

Preparation for the Premajor and Major

Required for the Premajor: Three courses, including two in Western civilization (History 1A, 1B, 1C) or two in world history (courses 20, 21, 22), and one course from 96W or 97A through 97O.

After completing the three courses with a minimum grade-point average of 2.0, students should petition to enter the major at the undergraduate counselor's office in 6248 Bunche Hall.

Required for the Major: Three additional lower division history courses.

Transfer Students

Transfer applicants to the History major with 90 or more units must complete the following introductory courses prior to admission to UCLA: one semester or two quarters of history of Western civilization or world history, one historical practice course, and three additional lower division history courses.

Transfer credit for the premajor courses is subject to department approval. Transfer students should consult the undergraduate counselor before enrolling in any courses for the major.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: At least 10 upper division history courses, including (1) two courses in U.S. history, (2) two courses in non-Western history from the same area (i.e., Latin America, Asia, Near East, Africa), (3) two courses in European history or in history of science, and (4) one capstone seminar from the History 191 series.

The requirements for U.S., non-Western, and European history may be fulfilled with either upper or lower division courses, but majors are required to take a minimum of 10 upper division history courses.

There is no language requirement for the major; however, students wishing to enter the honors program or planning to do graduate work in history are urged to pursue language study early in their undergraduate careers.

Advanced Placement Credit in History

Effective Fall Quarter 2002 for entering freshmen, no course credit is granted for any AP Test.

Honors Program

The honors program is designed for History majors who are interested in completing a year-long research project that culminates in an honors thesis. A 3.5 departmental grade-point average is required for admission. To graduate with departmental honors, students must have a cumulative or overall GPA of at least 3.0 in all University-level coursework and at least a 3.5 GPA in all coursework required for the major.

The honors thesis must be completed in three terms, on the basis of work carried out in History 198A, 198B, and 198C. Students must register their intention to undertake an honors thesis with the undergraduate affairs vice chair no later than Spring Quarter of their junior year.

When students register for honors, they must provide the undergraduate affairs vice chair with a two-paragraph description of their thesis project, which must be approved in writing by the faculty member who agrees to act as their adviser. The undergraduate affairs vice chair must also approve the proposed project in writing.

The faculty adviser is primarily responsible for guiding the thesis work to its completion and assigns grades for the honors courses after the thesis is complete. The honors thesis should be 40 to 60 pages in length and be based on primary source material. Determination of the level of honors awarded (no honors, honors, or highest honors) is made by the undergraduate affairs vice chair, acting in conjunction with the honors committee, at the end of the term in which the thesis is completed.

History of Science and Medicine Minor

The History of Science and Medicine minor is designed for students who wish to augment their major, perhaps in one of the sciences, with a series of courses that analyze the historical growth, impact, and significance of science and medicine in Western and world culture. The minor consists of a choice of lower division courses that expose students to overviews of science and medicine in large time periods or to specific thematic concerns. Upper division courses offer more focused and often smaller classes that explore crucial episodes or areas

with a more rigorous and sophisticated content and methodology.

To enter the minor, students must be in good academic standing (2.0 grade-point average), have completed 45 units and at least one lower division course in the history of science or medicine for a letter grade, and file a petition with the minor adviser in 6265 Bunche Hall.

Required Lower Division Courses (12 units): Three courses from History 2B, 2D, 3A through 3D, Philosophy 8.

Required Upper Division Courses (20 units): Five courses from Anthropology 182, 183, History 179A through 180C, any upper division Honors Collegium courses with history of science or history of medicine content, Neurobiology M168 (or Physiological Science M168), Philosophy 124.

Each year certain undergraduate seminars in the History 191 sequence are designated as applicable to the upper division minor requirements. Students may also petition to have other relevant courses, including those from other departments, applied toward the upper division requirements.

At least one upper division course, to be selected and approved in consultation with the undergraduate or faculty adviser, must involve writing a research or interpretative paper of significant length and intellectual content. No more than one upper division course may be applied toward both this minor and a major or minor in another department or program. Transfer credit for courses may be subject to departmental approval.

One course may be taken on a Passed/Not Passed basis; each of the other minor courses must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of History offers Master of Arts (M.A.), Candidate in Philosophy (C.Phil.), and Doctor of Philosophy (Ph.D.) degrees in History.

History

Lower Division Courses

1A-1B-1C. Introduction to Western Civilization. (5-5-5) Lecture, three hours; discussion, two hours. Broad, historical study of major elements in Western heritage from the world of the Greeks to that of the 20th century, designed to further beginning students' general education, introduce them to ideas, attitudes,

and institutions basic to Western civilization, and acquaint them, through reading and critical discussion, with representative contemporary documents and writings of enduring interest. P/NP or letter grading. **1A.** Ancient Civilizations, Prehistory to Circa A.D. 843; **1B.** Circa A.D. 843 to Circa 1715; **1C.** Circa 1715 to Present.

1AH-1BH-1CH. Introduction to Western Civilization (Honors). (5-5-5) Lecture, three hours; discussion, two hours. Honors sequence parallel to courses 1A, 1B, 1C. P/NP or letter grading. **1AH.** Ancient Civilizations, Prehistory to Circa A.D. 843 (Honors); **1BH.** Circa A.D. 843 to Circa 1715 (Honors); **1CH.** Circa 1715 to Present (Honors).

2A. Power, Ethics, and Technological Change. (4) Lecture, three hours; discussion, two hours. Examination of historical and theoretical relationships between ethical behavior, corporate power, and technological change. Topics include engineering practice and business profits, gender and engineering cultures, product liability and consumer safety, and engineering and computer ethics. Historical case studies include Three Mile Island, Chernobyl, the DC-10, and Challenger Disaster. P/NP or letter grading.

2B. Social Knowledge and Social Power. (5) Lecture, three hours; discussion, two hours. History of social knowledge and social power in the 19th and 20th centuries. Everyday ideas and practices about human nature, common sense, and community and relation of those practices to social thought, social engineering, and social science. Themes include development of social knowledges through public activities and discourses; how social knowledge differs in agricultural, mercantile, industrial, and information-based political economies; and how social science addresses these issues. P/NP or letter grading.

2C-2D. Religion, Occult, and Science. (5-5) Lecture, three hours; discussion, two hours. P/NP or letter grading:

2C. Mystics, Heretics, and Witches in Western Tradition, 1000 to 1600. (5) Lecture, three hours; discussion, two hours. Specific aspects of elite and popular culture in medieval and early modern Europe. Manner in which men and women sought to explain, order, and escape terrors of their lives by embracing transcendental religious experiences and dreaming of apocalypse and witchcraft. Examination of experiences in context of genesis of the state, birth of a new science, and economic and social change. P/NP or letter grading.

2D. Science, Magic, and Religion, 1600 to Present. (5) Lecture, three hours; discussion, two hours. Science and religion as historical phenomena that have evolved over time. Examination of earlier mind-set before 1700 when into science fitted elements that came eventually to be seen as magical. How Western cosmologies became "disenchanted." Magical tradition transformed into modern mysticisms. Political implications of these movements; science in totalitarian settings as well as "big science" during the Cold War. Discussion of anti-science and cult movements. P/NP or letter grading.

3A-3B-3C. Introduction to History of Science. (5-5-5) Lecture, three hours; discussion, two hours. History majors may not apply these courses on science general education requirements. P/NP or letter grading:

3A. Scientific Revolution. (5) Lecture, three hours; discussion, two hours. Survey of beginnings of physical sciences involving transformation from Aristotelian to Newtonian cosmology, mechanization of natural world, rise of experimental science, and origin of scientific societies. P/NP or letter grading.

3B. History of Science from Newton to Darwin. (5) Lecture, three hours; discussion, two hours. In this period science became part of Enlightenment campaign for reason and of culture of an Industrial Revolution. New social science and evolutionary debates about science and religion demonstrate its rising intellectual and practical significance. P/NP or letter grading.

3C. History of Modern Science, Relativity to DNA. (5) Lecture, three hours; discussion, two hours. Ranging from startling new physics of relativity and the quantum, and of nuclear weapons, to molecular reduction-

ism in biology and campaigns for statistical objectivity, examination of involvement of science in technological, military, intellectual, and political changes of the 20th century. P/NP or letter grading.

3CH. Introduction to History of Science: History of Modern Science, Relativity to DNA (Honors). (5) Lecture, three hours; discussion, two hours. Honors course parallel to course 3C. P/NP or letter grading.

3D. Themes in History of Medicine. (5) Lecture, three hours; discussion, two hours. Examination, through illustrated lectures and focused discussion of primary sources, of five important themes in development of modern medicine: nature of diagnosis, emergence of surgery, epidemics, conception and treatment of insanity, and use of medical technology. P/NP or letter grading.

4. Introduction to History of Religions. (5) Lecture, three hours; discussion, two hours. Comparative study of eight major religious traditions, with emphasis on their beginnings and subsequent decisive changes in their respective historical developments and interactions. Equips students with intellectual tools necessary for thinking analytically, empathetically, and comparatively about fascinating human phenomena identified as religious, such as sacred acts, places, words, and persons in their varied historical contexts. Development of student skills in critical thinking, analyzing documents, and making persuasive arguments based on historical evidence. P/NP or letter grading.

8A. Colonial Latin America. (5) Lecture, three hours; discussion, two hours. General introduction to Latin American history from contact period to independence (1490s to 1820s), with emphasis on convergence of Native American, European, and African cultures in Latin America; issues of ethnicity and gender; development of colonial institutions and societies; and emergence of local and national identities. Readings focus on writings of Latin American men and women from the period studied. P/NP or letter grading.

8AH. Colonial Latin America (Honors). (5) Lecture, three hours; discussion, two hours. Honors course parallel to course 8A. P/NP or letter grading.

8B. Political Economy of Latin American Underdevelopment, 1750 to 1930. (5) Lecture, three hours; discussion, two hours. Interaction of precapitalist and modern modes of social organization in Latin American history, particularly during the "long" 19th century, by focusing on relationship between economic change, social and cultural structures, and politics in the region. P/NP or letter grading.

8BH. Political Economy of Latin American Underdevelopment, 1750 to 1930 (Honors). (5) Lecture, three hours; discussion, two hours. Honors course parallel to course 8B. P/NP or letter grading.

8C. Latin American Social History. (5) Lecture, three hours; discussion, two hours. Historical and contemporary perspective of role of ordinary people in Latin American society. Each lecture/film session centers on a major Latin American movie illustrative of a theme in social history. P/NP or letter grading.

8CH. Latin American Social History (Honors). (5) Lecture, three hours; discussion, two hours. Honors course parallel to course 8C. P/NP or letter grading.

9A-9E. Introduction to Asian Civilizations. (5 each) Lecture, three hours; discussion, two hours. P/NP or letter grading:

9A. History of India. (5) Lecture, three hours; discussion, two hours. Introductory survey for beginning students of major cultural, social, and political ideas, traditions, and institutions of Indic civilization. P/NP or letter grading.

9C. History of Japan. (5) Lecture, three hours; discussion, two hours. Survey of Japanese history from earliest recorded time to the present, with emphasis on development of Japan as a cultural daughter of China. Attention to manner in which Chinese culture was Japanese and aspects of Japanese civilization which became unique. Creation of the modern state in the last century and impact of Western civilization on Japanese culture. P/NP or letter grading.

9CH. History of Japan (Honors). (5) Lecture, three hours; discussion, two hours. Honors course parallel to course 9C. P/NP or letter grading.

9D. History of the Near and Middle East. (5) Lecture, three hours; discussion, two hours. Introduction to history of Muslim world from advent of Islam to the present day. P/NP or letter grading.

9E. Southeast Asian Crossroads. (5) Lecture, three hours; discussion, two hours. Overview history of a region united by its wet tropical environment and divided by great religious, cultural, and political pluralism, with focus on Vietnamese, Thai, Filipino, Khmer, Burmese, and Malayo-Indonesian patterns. P/NP or letter grading.

M10A-10B. History of Africa. (5-5) P/NP or letter grading. **M10A.** To 1800. (Same as Afro-American Studies M10A.) Lecture, three hours; discussion, one hour. Exploration of development of African societies from earliest times to late 18th century. **10B.** 1800 to Present. Lecture, three hours; discussion, two hours. Not open for credit to students with credit for course 10BH or 10BW. Survey of social, economic, and political developments in Africa since 1800, with focus on slave trade, imperialism and colonialism, and nationalism and independence. Attention to different ideologies (nationalism, socialism, apartheid), rural/urban tensions, changing role of women.

10BH. Introduction to Civilizations of Africa (Honors). (4) Lecture, three hours; discussion, two hours. Not open for credit to students with credit for course 10B or 10BW. Honors course parallel to course 10B. P/NP or letter grading.

10BW. Introduction to Civilizations of Africa since 1800. (5) Lecture, three hours; discussion, two hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 10B or 10BH. Survey of social, economic, and political developments in Africa since 1800, with focus on slave trade, imperialism and colonialism, and nationalism and independence. Attention to different ideologies (nationalism, socialism, apartheid), rural/urban tensions, changing role of women. Four papers required. Satisfies Writing II requirement. Letter grading.

11A-11B. History of China. (5-5) Lecture, three hours; discussion, two hours. P/NP or letter grading. **11A.** To 1000. Survey of early history of China—genesis of characteristic Chinese institutions and modes of thought from antiquity to 1000. Focus on social, political, intellectual, and economic aspects of early and middle empires. **11B.** 1000 to 1950. Survey of later history of China—evolution of characteristic Chinese institutions and modes of thought from 1000 to 1950. Focus on social, political, intellectual, and economic aspects of late empires and rise of modern China in contemporary era.

11AH-11BH. History of China (Honors). (5-5) Lecture, three hours; discussion, two hours. Honors sequence parallel to courses 11A, 11B. P/NP or letter grading. **11AH.** To 1000 (Honors); **11BH.** 1000 to 1950 (Honors).

13A-13B-13C. History of the U.S. and Its Colonial Origins. (5-5-5) Lecture, three hours; discussion, two hours. Strongly recommended for History majors planning to take more advanced courses in U.S. history. Cultural heritages, political institutions, economic developments, and social interactions which created contemporary society. P/NP or letter grading. **13A.** Colonial Origins and First Nation Building Acts; **13B.** 19th Century; **13C.** 20th Century.

20. World History to A.D. 600. (5) Lecture, three hours; discussion, two hours. Examination of earliest civilizations of Asia, North Africa, and Europe—Mesopotamia, Egypt, Israel, India, China, Greece, and Rome—from development of settled agricultural communities until about A.D. 500, with focus on rise of cities, organization of society, nature of kingship, writing and growth of bureaucracy, varieties of religious expression, and linkage between culture and society. P/NP or letter grading.

21. World History, Circa 600 to 1760. (5) Lecture, three hours; discussion, two hours. Outline of world history from rise of Islam to start of Industrial Revolu-

tion, structured around a broad chronological narrative of salient developments. Use of thematic and comparative approaches, with certain recurring themes and institutions that modulate from culture to culture. Reading of variety of contemporary accounts to look at way people perceived cultures outside their own. P/NP or letter grading.

22. Contemporary World History, 1760 to Present.

(5) Lecture, three hours; discussion, two hours. Broad thematic survey of world history since the mid-18th century. Examination, through lecture and discussion, of global implications of imperialism, total war, nationalism, cultural change, decolonization, changes in women's rights and roles, and eclipse of world communism. Designed to introduce students to historical study, help them understand issues and dilemmas facing the world today, and prepare them for more in-depth work in history of specific regions or countries of the world. P/NP or letter grading.

88. Sophomore Seminars: History. (4) Seminar, three hours. Limited to maximum of 20 lower division students. Readings and discussions designed to introduce students to current research in discipline. Culminating project may be required. P/NP or letter grading.

88GE. Sophomore Seminar: Special Topics in History. (5) Seminar, four hours. Requisite: designated GE lecture course; see *Schedule of Classes* for specific requisite lecture and seminar topics. Designed for sophomores/juniors. Exploration of aspects of lecture topic through readings, images, and discussions. P/NP or letter grading.

94. History Research Methods and Strategies. (1) (Formerly numbered 95.) Seminar, one hour. Development of competency with identifying, locating, critically evaluating, and using information in print, electronic, and other formats. Flow of information in variety of disciplines, how to approach research problems systematically, how to access and evaluate information in variety of formats, and how to formulate effective searches and search in electronic databases and on Internet. P/NP or letter grading.

96W. Introduction to Historical Practice. (5) Seminar, three hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for former course 99W. Introduction to study of history, with emphasis on historical theory and research methods. Satisfies Writing II requirement. Letter grading.

97. Historical Practices Adjunct Seminar. (1) Seminar, one hour. Corequisite: any course from History 97A through 97O. Limited to History majors. Exploration of topics covered in courses 97A through 97O in greater depth through supplemental readings, discussions, or other activities. P/NP grading.

97A-97O. Introduction to Historical Practice: Variable Topics. (4 each) Seminar, three hours. Discussion classes of no more than 15 students. Introduction to study of history, with emphasis on historical theory and research methods. Variable topics courses; consult *Schedule of Classes* for topics to be offered in specific term. P/NP or letter grading. **97A.** Ancient History; **97B.** Medieval History; **97C.** European History; **97D.** U.S. History; **97E.** Latin American History; **97F.** Near Eastern History; **97G.** East Asian History; **97I.** History of Science/Technology; **97J.** African History; **97K.** History of Religion; **97L.** Jewish History; **97M.** Southeast Asian History; **97N.** Indian History; **97O.** World History.

99. Student Research Program. (1 to 2) Tutorial (supervised research or other scholarly work), three hours per week per unit. Entry-level research for lower division students under guidance of faculty mentor. Students must be in good academic standing and enrolled in minimum of 12 units (excluding this course). Individual contract required; consult Undergraduate Research Center. May be repeated. P/NP grading.

Upper Division Courses

100. History and Historians. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Study of historiography, including intellectual processes by which history is writ-

ten, results of these processes, and sources and development of history. Attention also to representative historians. P/NP or letter grading.

101. Topics in World History. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of specific historical themes from world historical perspective. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading.

102. Explorations in Psychoanalysis and History. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Art of psychological and historical interpretation; assessment of recent writings in field of psychohistory.

M102A-M102B. Historical Archaeology. (4-4) (Same as Anthropology M115A-M115B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading.

M102A. World Perspective. Historical archaeology requires appreciation of historical sources, archaeology, and material culture. Thematic emphasis, with exploration of breadth of discipline both in Old World and Americas. **M102B.** American Perspective. Emphasis on historical archaeology in North America, particularly to some practical applications.

M103A-M103B. Ancient Egyptian Civilization. (4-4) (Same as Ancient Near East M103A-M103B.) Lecture, three hours; discussion, one hour (when scheduled). Course M103A is not requisite to M103B. Designed for juniors/seniors. Political and cultural institutions of ancient Egypt and ideas on which they were based. P/NP or letter grading. **M103A.** Chronological discussion of Prehistory, Old and Middle Kingdom. **M103B.** New Kingdom and Late period until 332 B.C.

M104. History of Ancient Mesopotamia and Syria. (4) (Same as Ancient Near East M104.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Political and cultural development of Fertile Crescent, including Palestine, from Late Uruk to neo-Babylonian period. Letter grading.

105A-105B-105C. Survey of Middle East, 500 to Present. (4-4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Background and circumstances of rise of Islam, creation of Islamic Empire, and its development. Rise of Dynastic Successor States and Modern Nation States. Social, intellectual, political, and economic development. P/NP or letter grading. **105A.** 500 to 1300; **105B.** 1300 to 1700; **105C.** 1700 to Present.

106A. Premodern Islam. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of early development of Islam with special attention to doctrine of nature of God, human responsibility, guidance, revelation and religious authority, duties of believers, ritual, law, sectarian movements, mysticism, and popular religion. P/NP or letter grading.

106B. Religion and Society in Modern Middle East. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Redefinition of religion in Middle East, emergence of new religious movements, and transformation of meaning and function of religion in society. P/NP or letter grading.

107A-107B-107C. Armenian History. (4-4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading. **107A.** Armenia in Ancient and Medieval Times, 2nd Millennium B.C. to A.D. 11th Century; **107B.** Armenia from Cilician Kingdom through Periods of Foreign Domination and National Stirrings, 11th to 19th Centuries; **107C.** Armenia in Modern and Contemporary Times, 19th and 20th Centuries. Armenian question and genocide, national republic, Soviet Armenia, and dispersion.

107D. Introduction to Armenian Oral History. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Uses and techniques of Armenian oral history; preinterview, interview, and postinterview procedures; methods of

compilation and evaluation. Field assignments, interviews, and summaries and/or paper based on interviews. P/NP or letter grading.

107E. Caucasus under Russian and Soviet Rule. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of political, economic, social, and cultural history of Caucasus region since 1801. Georgian, Armenian, and Azerbaijani response to Russian and Soviet rule; nationality question and Soviet national republics. P/NP or letter grading.

108A. History of North Africa from Islamic Conquest. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of political, social, economic, and religious history of Islamic West (Maghrib) from Muslim conquest in 7th and 8th centuries C.E. until 1578. P/NP or letter grading.

108B. History of Islamic Iberia. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of political, social, economic, religious, artistic, and literary history of Islamic culture in Western Europe. P/NP or letter grading.

M108C. Culture Area of Maghrib (North Africa). (4) (Same as Anthropology M171P and Arabic M171.) Lecture, three hours. Designed for juniors/seniors. Introduction to North Africa, especially Morocco, Algeria, Tunisia, and Libya, also known as Maghrib or Tamazgha. Topics include changing notions of personal, tribal, ethnic, linguistic and religious identities; colonialism; gender and legal rights, changing representations of Islam, and religions in region's public spaces. P/NP or letter grading.

109A. Early Modern State in Mediterranean. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Emergence of phenomenon called early modern state in Ottoman Empire from 1450 to 1700. Exploration of main themes and processes in early modern European and Mediterranean history. P/NP or letter grading.

109B. Palestine, Zionism, and Evolution of Israeli-Palestinian Conflict. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of origins of Arab-Israeli dispute from mid-19th century through founding of state of Israel and expulsion/flight of three quarters of million Palestinians from their homes. Exploration of social history of Palestine up to Zionist colonization, origins of Zionism and Palestinian nationalism, varieties of Zionism, Zionism and colonialism, seminal events and their consequent symbolic connotations "Great Revolt" and 1948 nakba (disaster), construction of national consensus in Israel, 1967 and its aftermath, intifada, and redefinition of conflict as result of Oslo. P/NP or letter grading.

C109C. Israeli Legal History. (1 to 5) Lecture, three hours. Israel is settler society inspired by utopian ideology but based on war and violence. Like U.S., Israel is imperfect democracy committed to notions of equality yet divided along class, gender, and ethnic lines. Law plays role in shaping identity, framing political discourse, and mediating social conflicts. How do law and society interact in Israel and how can Israeli experience illuminate themes common to both jurisdictions? Introduction to Israeli history and legal history, with focus on three periods: late Ottoman, British mandate, and first two decades after Israeli independence. Topics include legal reforms in late Ottoman period, reception of English law after British conquest, law and national identity, postindependence legal change and continuity, formalism and rights discourse, ethnic conflict and land law, influence of political ideologies on commercial law, gender, religion, and law, role of courts in shaping historical memory (Holocaust). Concurrently scheduled with course CM209. P/NP or letter grading.

M110A-M110B-M110C. Iranian Civilization. (4-4-4) (Same as Ancient Near East M110A-M110B-M110C and Iranian M110A-M110B-M110C.) Lecture, three hours; discussion, one hour (when scheduled). History of ancient Iran from rise of Elam to end of Sasanian dynasty—Elamite civilization and Mede, Achaemenid,

Arsacid, and Sasanian Empires. Emphasis on ancient Iran, but may be offered for early Islamic period. P/NP or letter grading.

110D. History of Modern Iran, 1500 to Present. (4) (Formerly numbered 110B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Iran as distinct national unit, demystifying Iranian history and distinguishing its peculiarities, Safavid Empire, economy, imperialism, modernity, construction of Iranian state, religion and political ideologies in early modern and modern periods. P/NP or letter grading.

111A-111B-111C. Topics in Middle Eastern History. (4-4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading. **111A.** Pre-modern. Examination of major issues in history of Middle East. **111B.** Early Modern. Examination of Istanbul in Ottoman period (1453 to 1923); relationship between history and literary imagination and view of history as dialogue between past and present; scholarly debate on urban history of early-modern Middle East; introduction to corpus of theories (world economy paradigm) through discussion of Ottoman port cities. **111C.** Modern. Middle East underwent widespread social, economic, and cultural changes during 19th century that propelled society, at least portions of society and aspects of its social/cultural life, in entirely new direction. Examination of those changes to understand exactly what modernity meant for region.

112A-112B-112C. History of Ancient Mediterranean World. (4-4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading. **112A.** Survey of history of ancient East from earliest times to foundation of Persian Empire. **112B.** History and institutions of Greeks from their arrival to death of Alexander. **112C.** History and institutions of Rome from founding of city to death of Constantine.

112D. History and Monuments of Ancient Greece: Field Studies. (4) Fieldwork, three hours. Enforced corequisite: course 112B. Examination of history, art, and monuments of ancient Greece through daily lectures and field walks to museums and archaeological sites. Part of UCLA Summer Travel Program. P/NP or letter grading.

112E. History and Monuments of Rome: Field Studies. (4) Fieldwork, three hours. Enforced corequisite: course 112C. Examination of history, art, and monuments of ancient Rome through daily lectures and field walks to museums and archaeological sites. Field trips outside Rome to Pompeii, Hadrian's Villa, and ancient Ostia. Some attention to monuments and churches of medieval and Renaissance Rome in their historical context. Part of UCLA Summer Travel Program. P/NP or letter grading.

113A-113B. History of Ancient Greece. (4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading. **113A.** Rise of Greek City-State. Emphasis on archaic period and early classical age through Persian Wars. **113B.** Classical Period. Clash between Athens and Sparta, consequent rise of Macedonia, and aftermath of Alexander the Great.

114A-114B-114C. History of Rome. (4-4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading. **114A.** To Death of Caesar. Emphasis on development of imperialism and on constitutional and social struggles of late republic. **114B.** From Death of Caesar to Time of Constantine. Early empire treated in more detail, supplemented by survey of social and economic changes in 3rd century. **114C.** Transformation of Classical World. Political, cultural, and religious history of Mediterranean in late antiquity, from crisis of Roman Empire in 3rd century to barbarian and Arab invasions and beginning of medieval states and societies in 7th century.

115. Topics in Ancient History. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Introduction to topics in Greek and Roman history, including Roman law, an-

cient Greek and Roman slavery, world of Caesar Augustus, Greek democracy, and Alexander the Great. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading.

116A-116B. Byzantine History. (4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Political, socioeconomic, religious, and cultural continuity in millennial history of Byzantium. Reforms of Diocletian. Byzantium's relations with Latin Europe, Slavs, Sassanids, Arabs, and Turks. P/NP or letter grading.

M116C. Power and Imagination in Byzantium. (4) (Same as Classics M170C.) Lecture, three hours; discussion, one hour (when scheduled). Requisites: courses 116A, 116B. Designed for juniors/seniors. Study of relations of authority and intelligentsia in highly centralized Byzantine Empire. Topics include criticism of emperor, iconoclasm, intellectual freedom, attempts at reform. Letter grading.

119A-119B. Medieval Europe. (4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Basic introduction to Western Europe from Latin antiquity to age of discovery, with emphasis on medieval use of Greco-Roman antiquity, history of manuscript book, and growth of literacy. P/NP or letter grading. **119A.** 400 to 1000; **119B.** 1000 to 1500.

119C. Medieval Civilization: Mediterranean Heartlands. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of Western Mediterranean Europe, social/economic/cultural within political framework, including its relation with other cultures. P/NP or letter grading.

119D. Topics in Medieval History. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Special topics in history of Middle Ages, including religion in society, justice and law, politics of war and diplomacy, economic upheaval and renewal, and cultural representations. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading.

120A-120B. East-Central Europe. (4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading. **120A.** Long 19th Century, 1780 to 1914. Analysis of characteristics of peripheral 19th-century capitalism, effort to modernize and catch up, and factors and consequences of its partial failure in economy, politics, and culture. **120B.** Short 20th Century, 1918 to 1990. Analysis and interpretation of stormy history of crisis zone of Europe where wars, revolts and revolutions, and different types of extremisms led to historical detour: 70 years of departure from Western values and at last effort to turn back to them.

120C. East-Central Europe in Transition, 1988 to 1993. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. State-socialism and Soviet domination collapsed in East-Central Europe in 1989. Analysis of cause and consequence of collapse, as well as road of transformation in seven (now 12) countries of region; international circumstances and domestic political, social, and economic processes. Ideology of transition versus reality of democratization, marketization, and privatization; free choice versus determinant factors. Scenarios for future. P/NP or letter grading.

120D. Film and History: Central and Eastern Europe, 1945 to 1989. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Postwar history of central and eastern Europe (1945 to 1989), using eight Czech, Polish, and Hungarian films to explore life under state socialist modernization dictatorship. P/NP or letter grading.

121A-121F. History of Modern Europe. (4 each) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading:

121A. Renaissance and Reformation, 1450 to 1660. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Reorganization of power, new forms of representation, and discourses about rule and obedience in Europe from

mid-15th through 16th century; popular culture; peasant society; refashioning of religion and power; localization. P/NP or letter grading.

121B. Baroque Culture and Absolutist Politics, 1600 to 1715. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Changing nature of state and social domination; redeployment of military violence; strategies of population discipline; absolutism and baroque culture; new forms of bureaucratic intervention; representation of family, sexuality, and body; witch persecutions. P/NP or letter grading.

121C. Old Regime and Revolutionary Era, 1715 to 1815. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Enlightened absolutism and reform, challenge of new political and economic ideas, crisis of Old Regime, impact of French Revolution and Napoleonic empire. P/NP or letter grading.

121D. Bourgeois Century, 1815 to 1914. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Restoration politics, Industrial Revolution, uprisings of 1848, unification of Germany and Italy, imperialism, rise of socialism, population growth, changes in social structure, origins of World War I. P/NP or letter grading.

121E. Era of Total War, 1914 to 1945. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. World War I, interwar period, and World War II. Social, cultural, political, and economic aspects, with focus on strain between model of parliamentary democracy and dynamics of mass politics (e.g., Bolshevik Revolution, Italian Fascism, national socialism, and Spanish Civil War). P/NP or letter grading.

121F. World War II and Its Aftermath, 1939 to the Present. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. World War II, origins and persistence of Cold War, reconstruction in West, de-Stalinization, decolonization, crisis of welfare state, background to and course of 1989 revolutions, current political configuration. P/NP or letter grading.

122A-122F. Cultural and Intellectual History of Modern Europe. (4 each) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Climates of taste and climates of opinion. Educational, moral, and religious attitudes; art, thought, and manners of time in historical context. P/NP or letter grading. **122A.** 15th Century. Renaissance cultural and intellectual history of Europe. Central themes include comparative history of ideas, theory and practice of art and architecture, civic and religious humanism, religious experience, and new cultural genres of history and philological scholarship. **122B.** 16th Century. **122C.** 17th Century. **122D.** 18th Century. **M122E.** 19th Century. (Same as Art History M110D.) **122F.** 20th Century.

123A-123B-123C. War and Diplomacy in Europe. (4-4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading. **123A.** 1650 to 1815. Survey of military and diplomatic history, seen in relation to social and economic developments and growth of state. **123B.** 1815 to 1945. Changing patterns of warfare and diplomatic attempts to contain Great Power rivalries; wars of national unification; imperialism; shifting balance of power and alliances; origins, course, and effects of two World Wars. **123C.** Cold War. Relations of West, Soviet Union, and world from 1945 to 1991. Origins, development, and end of power-political, military, and ideological confrontations between superpowers and their allies and clients in Europe, Asia, and Latin America.

124A-124B-124C. History of France. (4-4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading. **124A.** France, 1500 to 1715. Social history of 16th- and 17th-century France, including growth of monarchy, wars of religion, peasant uprisings, popular culture, Catholic resurgence, Louis XIV, and achievements in arts and literature. **124B.** France, 1715 to 1871. *Ancien Régime* and time of revolutions. Critical

discourse leading to French Revolution, collapse of state, Napoleonic era, reconstruction of society through monarchies and revolutions of 19th century. **124C.** Making of Modern France, 1871 to Present. From oligarchy to democratic bureaucracy in two wars and three republics.

125A. Baroque and Enlightenment Germany. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Development of state institutions, culture, and society in Central Europe from end of Thirty Years' War to end of Napoleonic Wars. Consideration of absolutism as political system, and baroque and Enlightenment cultures as new discourses on power and hierarchy. P/NP or letter grading.

125B. Nationalism and Modernization in 19th-Century Germany. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Problems of class society and state formation, emancipation, assimilation, growth of national consciousness, emergence of bourgeois public sphere, dynamics of gender in civil society and political life, post-Napoleonic tensions between reform and reaction, 1848, and national unification. P/NP or letter grading.

125C. 20th-Century Germany. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Transitions that Germany has faced during this century: two world wars, shift from monarchy to republic to national socialism to divided nation, and finally reunification. Consideration of political, social, economic, and cultural spheres. P/NP or letter grading.

125D. History of Low Countries. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of aspects of Dutch (and on occasion Belgian) history from medieval period to period after World War II, with emphasis on political and cultural history. Topics include Middle Ages, Dutch Republic in 17th and 18th centuries, Low Countries from 1830 to 1918, Netherlands and Belgium in context of Europe after 1945. P/NP or letter grading.

126. Europe in Age of Revolution, Circa 1775 to 1815. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Period from revolt of Thirteen Colonies to French Revolution of 1789, and Napoleonic regime, viewing social and political changes unleashed by these revolutionary movements in comparative and transnational perspective. P/NP or letter grading.

M127A-127D. History of Russia. (4 each) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading:

M127A. Origins to Rise of Muscovy. (4) (Same as Russian M118.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Kievan Russia and its culture, Appanage principalities and towns; Mongol invasion; unification of Russian state by Muscovy, Autocracy and its Servitors; serfdom. P/NP or letter grading.

127B. Imperial Russia from Peter the Great to Nicholas II. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Westernization of state and society; centralization at home and expansion abroad; peasant problem; beginnings of industrialization; movements of political and social protest; non-Russian peoples; political reforms and social changes; Revolution of 1905; Russia in World War I; fall of old regime. P/NP or letter grading.

127C. Revolutionary Russia and Soviet Union. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Revolutions of 1917, Civil War, consolidation of Bolshevik Regime; succession crisis and ascendancy of Stalin, collectivization and industrialization; foreign policy and World War II; death of Stalin, de-Stalinization, developments since; stagnation or stability? P/NP or letter grading.

127D. Culture and Society in Imperial Russia. (4) Lecture, three hours; discussion, one hour (when scheduled). Recommended preparation: course 127B or Russian 90A or 119. Designed for juniors/seniors. Thematic examination of culture and society in Russia

during era of state-sponsored Westernization (1689 to 1917). Topics include nobility, peasantry, and village life from serfdom to postemancipation era, urban society, working-class life and thought, women, clergy, religion, popular culture, accommodation, and resistance. P/NP or letter grading.

127E. History and Culture of Russia: Field Studies. (4) Lecture, 10 hours; fieldwork, 21 hours. Examination of history, art, monuments, and politics of Russia from ancient time to present. Daily lectures and field trips in and around Moscow and St. Petersburg; study cruise of Volga River towns. Part of UCLA Summer Travel Program. P/NP or letter grading.

128A-128B-128C. History of Italy. (4-4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading. **128A.** 1350 to 1559. Most important social, economic, political, and cultural developments in history of Italy during later Middle Ages and Renaissance. **128B.** 1559 to 1848. Counter-Reformation and absolutism, Enlightenment reforms, revolutionary era, and first phase of Risorgimento. **128C.** 1848 to Present. Political, economic, social, diplomatic, and ideological developments.

128BL. Italian Literature in Historical Context, 1559 to 1848. (1) Seminar, three hours. Designed for juniors/seniors and to be taken in conjunction with course 128B. Reading of texts in Italian selected from works that relate directly to material covered in course 128B. P/NP or letter grading.

129A-129B. Social History of Spain and Portugal. (4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading. **129A.** Age of Silver in Spain and Portugal, 1479 to 1789. Development of popular history in Iberian Peninsula. Emphasis on peasants and urban history, gold routes, slave trade, history of women, and development of different types of collective violence. **129B.** Rebellion and Revolution in Modern Spain and Portugal, 1789 to Present. Spain's position in Europe and its potentialities for social change discussed through investigations of urban history, agrarian social structure, history of women, problems of slow industrial development, imperialism, anarchism, and labor history.

130A-130B. Southeastern Europe. (4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading. **130A.** 500 to 1500. Political, economic, and cultural survey of independent Balkan states in Middle Ages. **130B.** 1500 to 1918. Balkans under Ottoman rule, movements of national liberation, and formation of nation states.

131A-131B. Marxist Theory and History. (4-4) Lecture, three hours; discussion, one hour (when scheduled). Course 131A is generally requisite to 131B. Designed for juniors/seniors. Introduction to Marxist philosophy and method; conception of historical stages; competing Marxist analyses of transition from feudalism to capitalist economy via reading *Capital*; theory of politics and state in relationship to historical interpretation of 19th-century European revolutions; capitalist crises. P/NP or letter grading.

132. Topics in European History. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Integrated introduction to important aspects of European history, with emphasis on specific topic within broad framework. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading.

M133A-M133B. History of Women in Europe. (4-4) (Same as Women's Studies M133A-M133B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. History of social, political, and cultural roles of women in Western Europe from early Middle Ages to present. P/NP or letter grading. **M133A.** 800 to 1715; **M133B.** 1715 to Present.

M133C. History of Prostitution. (4) (Same as Women's Studies M133C.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. History of prostitution from ancient times to present. Topics include toleration in medieval Europe, impact of syphilis, birth of courtesan, regula-

tion in 19th-century Europe, white slavery scare, and contemporary global sex trade. Readings include novels, primary sources, and testimony by sex workers. P/NP or letter grading.

134B-134C. Economic History of Europe. (4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading. **134B.** 1780 to 1914. Analysis of emergence of European world economy, first Industrial Revolution, revolutionary changes in technology, demographic patterns, education, transportation, and interrelationship between Western core and European peripheries in process of industrialization. **134C.** 20th Century. Changing European economy after World War I and II and in 1990s; impact of fourth and fifth Industrial Revolutions; Great Depressions of century during 1930s, 1970s, and 1980s; and changing modernization strategies; import-substituting industrialization in peripheries; Soviet modernization dictatorship in East Central Europe and its collapse; integration process of second half of century and rise of European Union; modernization model at end of century.

135A-135B-135C. Europe and World. (4-4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading:

135A. Exploration and Conquest, 1400 to 1700. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. First phase of European expansion in Americas, Africa, and Eurasia. Analysis of motives and methods of expansion, differing patterns of European settlement, including plantation economy, and development of new commercial networks, including Atlantic slave trade. P/NP or letter grading.

135B. Colonialism, Slavery, and Revolution, 1700 to 1870. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Origins and gradual increase of European dominance of world trade, impact of European colonialism in New World, Africa, and Asia, influence of new revolutionary ideals that took shape in wake of Enlightenment of 18th century, and beginnings of industrialization. P/NP or letter grading.

135C. Imperialism and Postcolonialism, 1870 to Present. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of major European events and trends and their impact on world in modern period. Interrelationship of European and world history, from partition of Africa to founding of India and Pakistan. Global consequences of Cold War and new place of Europe in world. P/NP or letter grading.

136A-136B-136C. History of Britain. (4-4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Analysis of British economy, society, and polity, with focus on dynamics of both stability and change. P/NP or letter grading. **136A.** Tudor-Stuart Times, 1485 to 1715. Political, socioeconomic, religious, and cultural history of Britain under Tudors and Stuarts. Topics include Reformation, transformation of economy, establishment of overseas colonies, 17th-century political upheavals and their impact on political and socioeconomic structures. **136B.** Making of Modern Britain, 1715 to 1867. Social, economic, political, and cultural history of Britain from Hanoverian revolution in politics to advent of mass democracy in mid-Victorian era. Themes include social change under pressure of industrialization, emergence of first British Empire, loss of America, shifts in religious and social position. **136C.** Modern Britain since 1832.

137A-137B. British Empire since 1783. (4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Political and economic development of British Empire, including evolution of colonial nationalism, development of commonwealth idea, and changes in British colonial policy. P/NP or letter grading.

138A. Colonial America, 1600 to 1763. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of molding of American society in English North America from

1600 to 1763. Emphasis on interaction of three converging cultures: Western European, West African, and American Indian. P/NP or letter grading.

138B. Revolutionary America, 1760 to 1800. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Inquiry into origins and consequences of American Revolution, nature of revolutionary process, creation of constitutional national government, and development of capitalist economy. P/NP or letter grading.

138C. U.S. History, 1800 to 1850. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Discussion of major social, political, economic, and cultural transformations of first half of 19th century and how these changes helped to drive wedge between North and South. P/NP or letter grading.

139A. U.S., Civil War and Reconstruction. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Rise of sectionalism, antislavery crusade; formation of Confederate States; war years; political and social reconstruction. P/NP or letter grading.

139B. U.S., 1875 to 1900. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. American political, social, and institutional history in period of great change. Emphasis on altering concepts of role of government and responses to that alteration. P/NP or letter grading.

140A-140B-140C. 20th-Century U.S. History. (4-4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading. **140A.** 1900 to 1928. Political, economic, intellectual, and cultural aspects of American democracy. **140B.** 1929 to 1960. Political, economic, intellectual, and cultural aspects of American democracy. **140C.** Since 1960. History of political, social, and diplomatic developments that have shaped U.S. since 1960.

141A-141B. American Economic History. (4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading. **141A.** 1790 to 1910. Roles of economic forces, institutions, individuals, and groups in promoting or impeding effective change in American economy from 1790 to 1910. During this period technical skeleton of modern industrial structure was formed. Why and how American economy evolved into dual economy, characterized by center of firms large in size and influence and periphery of smaller firms. **141B.** 1910 to Present. Dynamics of change in dual economy, with focus in greater detail on interrelationships between macro and micro developments in economy and on growing interdependency between U.S. and world economy from 1910 to present.

142A-142B. Intellectual History of U.S. (4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Principal ideas about humanity and God, nature and society, that have been at work in American history. Sources of these ideas, their connections with one another, their relationship to American life, and their expression in great documents of American thought. P/NP or letter grading.

142C. History of Religion in U.S. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Consideration of religious dimension of people's experience in U.S. Examination of number of religious traditions that have been important in this country, with emphasis on relating developments in religion to other aspects of American culture. P/NP or letter grading.

142D. American Popular Culture. (4) Lecture, three hours; discussion, one hour (when scheduled). Recommended requisites: courses 13B, 13C. Designed for juniors/seniors. Survey of American cultural history since 1865, with emphasis on historical development of urban, consumer-oriented American mass culture that enveloped diverse groups of Americans as producers and consumers. Historical development of American popular culture according to changing set of political, economic, and social circumstances. Evolution of national and global framework for mass circu-

lation of popular cultural expressions, as well as arrival of new technologies that enabled that development. P/NP or letter grading.

143A-143B. Constitutional History of U.S. (4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading. **143A.** Origins and Development of Constitutionalism in U.S. Particular emphasis on framing of Federal Constitution in 1787 and its subsequent interpretation. Judicial review, significance of Marshall Court, and effects of slavery and Civil War on Constitution. **143B.** Constitutionalism since Civil War. Particular emphasis on development of Supreme Court, due process revolution, Court and political questions, and fact of judicial supremacy within self-prescribed limits.

144. America in World. (4) (Formerly numbered 144A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Reconsideration of U.S. exceptionalist approach to national self-understanding by rethinking crucial aspects of American history in more international context that goes well beyond foreign relations and international affairs to reconceptualize aspects of American economic, intellectual, cultural, and social history. Consideration of transnational flows of people, ideas, goods, wealth, and politics, as well as comparative studies of all these things and more. P/NP or letter grading.

M144C. Critical Issues in U.S.-Philippine Relations. (4) (Same as Asian American Studies M171D.) Lecture, three hours; discussion, one hour (when scheduled). Recommended preparation: courses 176A, 176B, 176C. Designed for juniors/seniors. Examination of complex interrelationship between U.S. colonialism, Philippine nationalism, history of Filipino Americans, and Philippine diaspora in 20th century. P/NP or letter grading.

145A-145B. U.S. Urban History. (4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading. **145A.** U.S. Cities: Overview. Demographic, geographic, political, economic, and social development of U.S. cities in relation to broad trends in U.S. history as well as to their own more special histories. Emphasis on mastery of facts and chronology, and awareness of major theoretical issues and fundamental concepts in urban history. **145B.** Topics in U.S. Urban History. Exploration of one aspect of U.S. urban history in depth without having to attend to basic chronology or geography. Topics include crime and police, urban economics, and urban government. Students do primary research papers based on local materials in addition to written examinations. May be repeated for maximum of 16 units with topic and/or instructor change.

146A-146B. American Working Class Movements. (4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Major episodes in social, trade union, and cultural history of American working class from Colonial times to present, with emphasis on both organized and unorganized labor, history of Knights of Labor, A.F. of L. and C.I.O., and development of labor politics. P/NP or letter grading.

146C-146D. U.S. and Comparative Immigration History. (4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Use of overlapping diaspora model that integrates North Atlantic (Europe), South Atlantic (Afro-Caribbean), Pacific (China/Japan/Hawaii), and Latin (Mexico to Brazil) worlds to provide chronological and analytic survey of American and comparative immigration from 1750 to present. Special focus on Southern California in course 146D. P/NP or letter grading.

147A-147B. American Social History. (4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Historical analysis of American society and culture, with emphasis on family, religious values, Afro-American life, women's work, urbanization and industrialization, immigration and nativism, and movements for social reform. P/NP or letter grading. **147A.** 1750 to 1860; **147B.** 1860 to 1960.

M147C. History of Women in Colonial British America and Early U.S., 1600 to 1860. (4) (Same as Women's Studies M147B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Introduction to major themes in history of early American women from initial confrontation of English and American Indian cultures in early 17th century to rise of women's rights movement in mid-19th century. P/NP or letter grading.

M147D. History of Women in U.S., 1860 to 1980. (4) (Same as Women's Studies M147D.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Introduction to major themes in history of American women from abolition of slavery and Civil War to rise and consequences of second-wave feminism. P/NP or letter grading.

149A-149B. North American Indian History. (4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. History of Native Americans from contact to present, with emphasis on historical dimensions of culture change, Indian political processes, and continuity of Native American cultures. Focus on selected Indian peoples in each period. P/NP or letter grading. **149A.** Precontact to 1830; **149B.** 1830 to Present.

M150A. Comparative Slavery Systems. (4) (Same as Afro-American Studies M158A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of slavery experiences in various New World slave societies, with emphasis on outlining similarities and differences among legal status, treatment, and slave cultures of North American, Caribbean, and Latin American slave societies. P/NP or letter grading.

M150B-M150C. Introduction to Afro-American History. (4-4) (Same as Afro-American Studies M158B-M158C.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of Afro-American experience, with emphasis on three great transitions of Afro-American life: transition from Africa to New World slavery, transition from slavery to freedom, and transition from rural to urban milieu. P/NP or letter grading.

M150D. Recent African American Urban History: Funk Music and Politics of Black Popular Culture. (4) (Same as Afro-American Studies M150D.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Exploration of musical genre known as funk that emerged in its popular form during late 1960s and reached popular high point, in black culture, during 1970s. Funk, fusion of gospel, blues, jazz, rhythm and blues, soul, rock, and many other musical styles, offer students unique window into recent African American history. P/NP or letter grading.

M150E. African American Nationalism in First Half of 20th Century. (4) (Same as Afro-American Studies M158E.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Critical examination of African American search in first half of 20th century for national/group cohesion through collectively built institutions, associations, organized protest movements, and ideological self-definition. P/NP or letter grading.

M151A. History of Chicano Peoples. (4) (Same as Chicana and Chicano Studies M159A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey lecture course on historical development of Mexican (Chicano) community and people of Mexican descent (Indio-Mestizo-Mulato) north of Rio through 17th, 18th, and 19th centuries, with special focus on labor and politics. Provides integrated understanding of change over time in Mexican community by inquiry into major formative historical forces affecting community. Social structure, economy, labor, culture, political organization, conflict, and international relations. Emphasis on social forces, class analysis, social, economic, and labor conflict, ideas, domination, and resistance. Developments related to historical events of significance occurring both in U.S. and Mexico. Lectures, special presentations,

reading assignments, written examinations, library and field research, and submission of paper. P/NP or letter grading.

M151B. History of Chicano Peoples. (4) (Same as Chicana and Chicano Studies M159B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey lecture course on historical development of Mexican (Chicano) community and people of Mexican descent in U.S. through 20th century, with special focus on labor and politics. Provides integrated understanding of change over time in Mexican community by inquiry into major formative historical and policy issues affecting community. Within framework of domination and resistance, discussion deals with social structure, economy, labor, culture, political organization, conflict, and ideology. Developments related to historical events of significance occurring both in U.S. and Mexico. Lectures, special presentations, reading assignments, written examinations, library and/or field research, and submission of paper. P/NP or letter grading.

M151C. Understanding Whiteness in American History and Culture. (4) (Same as Chicana and Chicano Studies M182.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. History, construction, and representation of whiteness in American society. Readings and discussions trace evolution of "white" identity and explore its significance to historical construction of race class in American history. Letter grading.

M151D. Chicana Historiography. (4) (Same as Chicana and Chicano Studies M158 and Women's Studies M157.) Lecture, four hours. Examination of Chicana historiography, looking closely at how practice of writing of history has placed Chicanas into particular narratives. Using Chicana feminist approaches to study of history, revisiting of specific historical periods and moments such as Spanish Conquest, Mexican Period, American Conquest, Mexican Revolution, and Chicano Movement to excavate untold stories about women's participation in and contribution to making of Chicana and Chicano history. P/NP or letter grading.

152. Asians in American History. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Study of politically troubling question of entry into U.S. of immigrants ineligible for citizenship and their citizen children in American history. P/NP or letter grading.

153. American West. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Study of West as frontier and as region, in transit from Atlantic seaboard to Pacific, from 17th century to present. P/NP or letter grading.

154. History of California. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Economic, social, intellectual, and political development of California from earliest times to present. P/NP or letter grading.

M155. History of Los Angeles. (4) (Same as Chicana and Chicano Studies M183.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Social, economic, cultural, and political development of Los Angeles and its environs from time of its founding to present. Emphasis on diverse peoples of area, changing physical environment, various interpretations of city, and Los Angeles' place among American urban centers. P/NP or letter grading.

156. Topics in U.S. History. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of specific historical themes and/or major issues in U.S. history. P/NP or letter grading.

157A. Early Latin America. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Advanced survey of Latin American history from conquest to independence, with emphasis on society, culture, and ethnic aspects. P/NP or letter grading.

157B. Indians of Colonial Mexico. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of social and cultural history of Indians of Mexico, especially central

Mexico, from time of European conquest until Mexican independence, with emphasis on internal view of Indian groups and patterns on basis of records produced by Indians themselves. P/NP or letter grading.

159. Latin America in 19th Century. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Intensive analysis of economic, social, and political problems of Latin American nations from their independence to around 1910. P/NP or letter grading.

160A. Latin American Eliteloire. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Eliteloire (defined as oral or noninstitutionalized knowledge involving leaders' conceptual and perceptual life history views) in contrast to folklore (followers' traditional or popular views). Eliteloire genres include oral history, literature, and cinema. P/NP or letter grading.

160B. Mexican Revolution since 1910. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of concept of permanent crisis to describe and explain structure of permanent revolution under one-party democracy. Analysis of unresolved colonial and 19th-century problems and crises that have influenced modern-day Mexico, if in modified form. P/NP or letter grading.

161. Topics in Latin America History. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of major issues in history of Latin America. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading.

162A. Modern Brazil. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Selected topics in political, economic, social, and cultural development of Brazil, with emphasis on modernization and struggle for change, 1850 to present. Discussions, films, slides, and guest speakers supplement and complement lectures. P/NP or letter grading.

162B. Brazil and Atlantic World, 1500 to 1822. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Exploration of development of colonial society in Brazil from discovery in 1500 to independence in 1822, placing it in context of Portugal's overseas expansion in Asia, Africa, and Americas. Emphasis on Portuguese, indigenous, and African roots of modern Brazil. P/NP or letter grading.

162C. History of Argentina. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. History of economic, political, social, and cultural developments that have shaped Argentina from colonial time to present. Emphasis on 19th-century development of agro-export economy and 20th-century formation of mass society. P/NP or letter grading.

M164A-164Z. Topics in African History. (4 each) Lecture, three hours; discussion, one hour (when scheduled). Preparation: one prior course in African history at UCLA. Designed for juniors/seniors. Examination of specific topics that have continental application rather than proceeding on strictly chronological or regional basis. P/NP or letter grading:

M164A. Prehistoric Africa—Technological and Cultural Traditions. (4) (Same as Anthropology M119.) Lecture, three hours; discussion, one hour (when scheduled). Preparation: one prior course in African history at UCLA. Designed for juniors/seniors. Survey of nondocumentary sources of early African history, with emphasis on archaeological evidence from origins of humanity until A.D. 1600. P/NP or letter grading.

164B. Africa and Slave Trade. (4) Lecture, three hours; discussion, one hour (when scheduled). Preparation: one prior course in African history at UCLA. Designed for juniors/seniors. Social, economic, political, and cultural impact of slave trade on African society, with emphasis on Atlantic trade without neglecting those of ancient Mediterranean, Islamic, and Indian Ocean worlds. Abolition and African diaspora. P/NP or letter grading.

164C. Africa in Age of Imperialism. (4) Lecture, three hours; discussion, one hour (when scheduled). Preparation: one prior course in African history at UCLA. Designed for juniors/seniors. Topics include penetration of precapitalist social formations by capital, emergence of classes, nature of colonial and postcolonial state, and struggle for national liberation in global context. P/NP or letter grading.

164D. Africa and Diaspora in Global and Comparative Perspective. (4) Lecture, three hours; discussion, one hour (when scheduled). Preparation: one prior course in African history at UCLA. Designed for juniors/seniors. Forced migration of Africans through overseas slave trade was formative event of modern world. Exploration of that experience and its lasting consequences by placing it in its global context—African, American, European, Islamic, and Asian. P/NP or letter grading.

164E. Africa, 1945 to Present. (4) Lecture, three hours; discussion, one hour (when scheduled). Preparation: one prior course in African history at UCLA. Designed for juniors/seniors. History of Africa south of Sahara from end of World War II to present. Last phases of colonial rule in Africa, African nationalism, Pan-Africanism, liberation movements, and achievement of independence. Political, social, and economic change in colonies and in independent states of Africa. Neocolonialism, experiments in national development, apartheid in South Africa, ideological conflict in contemporary Africa, and Africa in world affairs since 1957. P/NP or letter grading.

165. Topics in African History. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of specific historical themes and/or major issues in African history. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading.

166A-166B. History of West Africa. (4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading. **166A.** West Africa, Earliest Times to 1800; **166B.** West Africa since 1800.

166C. Social and Economic History of West Africa since 1600. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Analysis of main currents of West African social, cultural, and economic history since fall of Songhai Empire, with emphasis on family, religious values, education, urbanization, migrations, arts, slavery, and slave trade. Roles of economic forces and institutions in promoting or inhibiting economic change in West Africa; ethnic diversity and sociopolitical integration; colonial economic systems and efforts at economic planning and development since 1950s. P/NP or letter grading.

167A. History of Northeast Africa. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of history of Ethiopia, Sudan, and Somalia in regional context of northeast Africa from earliest times to present, with emphasis on economy and society, evolution of state, and significance of Christianity and Islam. P/NP or letter grading.

167B. History of East Africa. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of cultural diversity of east Africa from earliest times to growth of complex societies, its place within wider Indian Ocean system, and colonial conquest to gaining of independence and postcolonial challenges. P/NP or letter grading.

167C. History of Central Africa. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of history of central Africa from earliest times, with emphasis on establishment of agriculture, growth of trade, rise of states, and incorporation of region into world economy. P/NP or letter grading.

168A-168B. History of Southern Africa. (4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Attention to social and economic as well as political aspects. P/NP or letter grading. **168A.** Origins to 1870. Origins of South

African peoples and their interactions to 1870. **168B.** Since 1870. Interactions between inhabitants of southern Africa since 1870.

169A-169B. Thought and Society in China. (4-4)

Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading. **169A.** To 1000. Recommended preparation: course 11A. Elite and popular expressions of Chinese cultural life examined in readings and lectures. Focus on diversities of thought in classical legacy and their evolution under impact of Buddhism to 1000. Emphasis on intersections between intellectual life and social, political, and economic conditions. **169B.** Since 1000. Recommended preparation: course 11B. Elite and popular expressions of Chinese cultural life from 1000 to 20th century. Emphasis on social, political, and economic conditions within which Chinese orthodox and heterodox values evolved and changed. Evaluation of iconoclasm of Chinese intellectual life in 20th century in light of earlier currents of thought.

170A. Culture and Power in Late Imperial China. (4)

Lecture, three hours; discussion, one hour (when scheduled). Recommended preparation: courses 11A, 11B. Designed for juniors/seniors. Analysis of relations of power and cultural expressions of dominance and resistance in late imperial China (1000 to 1700), with emphasis on interplay of economic forces, ideas, and social and political institutions. Examination of institutions of state, family, school, and city; idioms of folk religion, death, and afterlife; political, legal, and medical discourses of body, personhood, and social identity; love, sexuality, and private life. P/NP or letter grading.

170B. Selected Topics in Chinese History from 1500. (4)

Lecture, three hours; discussion, one hour (when scheduled). Recommended requisite: course 11B. Designed for juniors/seniors. Selected topics that may vary from year to year. Recent offerings include law, society, and culture; society and economy; and rural China. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading.

M170C. History of Women in China, A.D. 1000 to Present. (4)

(Same as Women's Studies M170C.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Topics include women and family, women in Confucian ideology, women in literati culture, feminist movement, and women and communist revolution. P/NP or letter grading.

170D. 20th-Century China. (4)

Lecture, three hours; discussion, one hour (when scheduled). Recommended preparation: course 11B. Designed for juniors/seniors. Political events and intellectual developments seen in context of social-economic trends; human agency, structural change, and historical conjunctures in 20th century. P/NP or letter grading.

171. Variable Topics in Japanese History. (4)

Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Important topics in Japanese history, including political change, economic development, social questions, and popular culture, as well as media and arts, explored through extensive readings. P/NP or letter grading.

172A-172B-172C. Japanese History. (4-4-4)

Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Political, economic, and cultural development of Japan from prehistory to present. P/NP or letter grading. **172A.** Ancient, Prehistory to 1600; **172B.** Early Modern, 1600 to 1868; **172C.** Modern, 1868 to Present.

173A. Japanese Popular Culture. (4)

Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Topics in 18th-, 19th-, and 20th-century Japanese history, including legacy of pre-modern satire in postmodern comic books, American culture in 1930s' Japanese visual culture, gender in photography, and relationship of monster movies to postwar politics. P/NP or letter grading.

M173B. Women in 20th-Century Japan. (4)

(Same as Women's Studies M173B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Japanese women in Japanese and world history through state documents, autobiographi-

cal voices, contemporary television, and other varying historical sources, including topics such as women and new political order (1900 to 1930), women, war, and empire (1930 to 1945), and women in consumer society (1980s to 1990s). P/NP or letter grading.

173C. Shinto, Buddhism, and Japanese Folk Religion. (4)

Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Social dimension of various Ways, great and little: Shinto's connection with cultural nationalism, Buddhism's medieval Reformation and Zen's relation to warrior culture, folk religious aspects such as shamanism, ancestor worship, and millenarianism. P/NP or letter grading.

174A. Early History of India. (4)

Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Introduction to civilization and institutions of India. Survey of history and culture of South Asian subcontinent from earliest times to founding of Mughal Empire. P/NP or letter grading.

174B-174C. History of British India I, II. (4-4)

Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading. **174B.** Examination of expansion of British rule, theories and practice of governance, constitution of India as oriental despotism, epistemological projects of state, and other modes by which British achieved conquest of knowledge. **174C.** Political economy of imperialism and Britain's civilizing mission. Encounter, especially in terms of race and gender, between colonized and colonizers and to questions of resistance and nationalism.

174D. Indo-Islamic Interactions, 700 to 1750. (4)

Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Historical introduction to Muslim communities of what eventually became nations of India, Pakistan, and Bangladesh. Topics include social, political, religious, and cultural history. P/NP or letter grading.

174E. Indo-Islamic Interactions, 1750 to 1950. (4)

Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of interplay of factors which, from Christian missionaries to Islamic madrasa schools and colonial rebellions, gave shape to multifaceted Muslim reformation in context of colonial modernity. P/NP or letter grading.

175A. Cultural and Political History of Contemporary South Asia. (4)

Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Problem of modernity; partition of India and emergence of Pakistan; political, social, ecological, and women's movements; struggle for rights and conflicts of identity among Muslims, Hindus, and Sikhs; terrorism in Sri Lanka and Punjab; public culture, popular cinema, and street life. P/NP or letter grading.

M175B. Indian Identity in U.S. and Diaspora. (4)

(Same as Asian American Studies M172A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. History of overseas Indian communities; transformations of Hinduism in diaspora; emergence of new diasporic art forms such as bhangra rap and chutney music; relations between Indians and other racial and ethnic groups; Indian women as embodiment of Indian culture; diasporic identities. P/NP or letter grading.

175C. Special Topics in Contemporary Indian History. (4)

Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Treatment of major issues in history of contemporary India. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading.

176A-176B. History of Southeast Asia. (4-4)

Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading. **176A.** Early History of Southeast Asia. Political and cultural history of peoples of Southeast Asia from earliest times to about 1815. **176B.** Southeast Asia since 1815. History of modern Southeast Asia, with emphasis on expansion of European influence in political and economic spheres, growth of nationalism, and process of decolonization.

176C. Philippine History. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Social, cultural, and political history of Philippine societies from Spanish conquest through independence. Emphasis on questions of identity under colonialism, understanding Revolutions of 1896 and 1898, and politics of Philippine nationalist discourse. Readings include introduction to major issues in Philippine historiography and literature. P/NP or letter grading.

176D. Premodern Vietnamese History. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Overview of history of people of Vietnam to beginning of colonial period (circa 1880), covering political, social, economic, cultural, and religious developments. Consideration of impact of Vietnamese past on modern age. P/NP or letter grading.

176E. Vietnam: Past and Present. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of history and culture of Vietnam from about 700 B.C. to present, including political, social, and economic developments as well as international relations in post-1954 period. P/NP or letter grading.

177A. National Histories of Southeast Asia. (4)

Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Variable topics with focus on history of one or more of Southeast Asia's nation-states: Indonesia, East Timor, Thailand, Cambodia, Burma, Laos, Malaysia, Singapore, Brunei, Philippines, Vietnam. P/NP or letter grading.

177B. Comparative Histories of Southeast Asia. (4)

Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Variable topics with focus on history of Southeast Asia from thematic or comparative perspective. Topics may include history of human rights in Southeast Asia, gender and sexuality in island Southeast Asia, and economic history of Southeast Asia. P/NP or letter grading.

179A. History of Medicine: Historic Roots of Healing Arts. (4)

Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Introduction to traditions, practices, goals, and myths of Western healing professions from time of ancient Greeks to Renaissance. Topics range from Hippocrates, Galen, and scholars at Alexandria to healing at Epidaurus and Salerno, contributions of medieval Muslim and Jewish doctors, rise of healing professions, medical faculties, nursing orders, and hospitals. P/NP or letter grading.

179B. History of Medicine: Foundations of Modern Medicine. (4)

Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Cultural, scientific, and social context that shaped modern medicine from Renaissance to Romantic era. Topics include establishment of anatomy, physiology, and modern clinical medicine, mapping of human body, medical approach to mental illness, rise of anatomic-clinical method at Paris School. P/NP or letter grading.

179C. Medicine and Society in 19th-Century America. (4)

Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Therapeutics, theories of disease, and medical science scrutinized with understanding that these are never value-neutral, but are shaped by social structures of which they are products. Why have doctors become so powerful and over whom did they wield power in 19th century? P/NP or letter grading.

180A. Topics in History of Science. (4)

Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Topics may include science and colonialism, science and religion, environmental history, science in Enlightenment, development of theory of evolution, science and public policy, public nature of science. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading.

M180B. Historical Perspectives on Gender and Science. (4) (Same as Women's Studies M180B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Historical cases illustrating how gender enters practices and concepts of science. Topics include gendered conceptions of nature, persona of man of science, role of women in scientific revolution, scientific investigations of women and feminine. P/NP or letter grading.

180C. Science and Technology in 20th Century. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Development of science and technology and their impact on society. Industrialization, global scientific community, social Darwinism, atomic bomb and nuclear proliferation, Cold War and American science, environmentalism, molecular biology and genetic engineering. P/NP or letter grading.

M181. Topics in Jewish History. (4) (Same as Jewish Studies M181.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of major issues in Jewish history. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading.

M182A. Ancient Jewish History from Patriarchs to Rabbis. (4) (Same as Jewish Studies M182A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of social, political, and religious developments. P/NP or letter grading.

M182B. Between Crescent and Cross: Jewish Middle Ages. (4) (Same as Jewish Studies M182B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Exploration of unfolding of Jewish history from rise of Christianity to expulsion of Jews from Spain in 1492. P/NP or letter grading.

M182C. Jewish History, Spanish Expulsion to 1881. (4) (Same as Jewish Studies M182C.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of early modern Jewish history beginning with enormously repercussive expulsion of Jews from Spain in 1492, followed by transformations in Jewish society and identity over five centuries in Europe and Middle East, and concluding with nationalism. P/NP or letter grading.

M182D. European Jewry, 1881 to Present. (4) (Same as Jewish Studies M182D.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of major social, economic, and political factors that shaped lives of Europe's Jews from outbreak of First World War to present. Emphasis on diverse Jewish communities of interwar Europe, fate of Jews under Nazis, and character of postwar Jewish community. P/NP or letter grading.

M182E-M182F. Jewish Intellectual History. (4-4) (Same as Jewish Studies M182E-M182F.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading. **M182E. Medieval Period.** Examination of three intellectual worldviews that competed for hegemony in medieval Jewish world—rabbinic Judaism, medieval rationalism as embodied in philosophy, and cabala. **M182F. Modern Period.** Exploration of some of most important currents and figures in Jewish intellectual history from 18th century to present.

M182G. Spirit of Secularism: Jewish Cultures in Secular Age. (4) (Same as Jewish Studies M182G.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of emergence of distinct forms of Jewish culture in modern age, particularly those that challenge traditional forms of Jewish religious culture (e.g., laws, customs, or rituals). P/NP or letter grading.

183A-183B. Third Reich and Jews. (4-4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading.

183A. History of modern anti-Semitic ideologies and movements. Rise of national socialism in Germany. Development and execution of Nazi anti-Jewish policy to outbreak of World War II. 183B. Second World War. Implementation of Nazi plans for extermination

of Jews in Nazi-dominated Europe. Life in Nazi-imposed ghettos. Forms of Jewish resistance. Fate of Jewish populations in occupied territories.

M184A. Jewish Civilization: Encounter with Great World Cultures. (4) (Same as Jewish Studies M184A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Exploration of dynamic and millennia-old interaction of Jews with great world cultures. Creative adaptations that have lent Jewish culture its distinct and various forms. P/NP or letter grading.

M184B. History of Anti-Semitism. (4) (Same as Jewish Studies M184B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of origins and historical development of anti-Semitism. P/NP or letter grading.

M184C. American Jewish Experience. (4) (Same as Jewish Studies M184C.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Experience of Jews in America, both historical and contemporary. P/NP or letter grading.

M184D. History of State of Israel, 1948 to Present. (4) (Same as Jewish Studies M184D.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of history of State of Israel from 1948 to present. P/NP or letter grading.

185A. History of Religions: Myth. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Nature and function of myth in history of religion and culture. Examples selected from nonliterate as well as from other Asian and European traditions. P/NP or letter grading.

185B. Religions of South and Southeast Asia. (4) Lecture, three hours; discussion, one hour (when scheduled). Prerequisite: course 4 or 185A. Designed for juniors/seniors. Topics vary from year to year and include religion of Veda; Brahmanism; (later) Hinduism. Consult *Schedule of Classes* for specifics. May be taken independently for credit. P/NP or letter grading.

185C. Religions of South and Southeast Asia. (4) Lecture, three hours; discussion, one hour (when scheduled). Prerequisite: course 4 or 185A. Designed for juniors/seniors. Topics vary from year to year and include Buddhism in India; religions of Java and Bali; nonliterate traditions of India and Southeast Asia. Consult *Schedule of Classes* for specifics. May be taken independently for credit. P/NP or letter grading.

M185D. Religions of Ancient Near East. (4) (Same as Ancient Near East M185D.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Main polytheistic systems of ancient Near East, with emphasis on Mesopotamia and Syria and with reference to religion of ancient Israel: varying concepts of divinity, hierarchies of gods, prayer and cult, magics, wisdom, and moral conduct. P/NP or letter grading.

185E. Special Topics in History of Religions. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Topics announced in *Schedule of Classes* and include ancient Germanic cults; Renaissance mysticism; mystics of low countries; goddesses; religion in secular age. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading.

186A. History of Early Christians. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Christian movement from its origins to circa 160 C.E., stressing its continuity/discontinuity with Judaism, various responses to Jesus of Nazareth, writings produced during this period, movement's encounters with its religious, social, and political world, and methods of research. P/NP or letter grading.

186B. Religious Environment of Early Christians. (4) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Rich variety in religious practice and thought in Mediterranean world of 1st century C.E. as in context of developing Christian movement. Topics include Pharisees, Qum-

ran, Philo, Stoics, Epicureans, traditional Greek and Roman religions, mysteries, astrology, magic, gnosticism, and emperor-worship. P/NP or letter grading.

186C. Jesus of Nazareth in Historical Research. (4) Lecture, three hours; discussion, one hour (when scheduled). Recommended preparation: course 186A. Designed for juniors/seniors. Stimulated by significant post-Enlightenment historical evaluations, students are led into firsthand knowledge (in translation) of various multilayered sources for reconstruction of life, teaching, and initial impact of Jesus of Nazareth in his social, economic, political, and religious contexts. P/NP or letter grading.

M187A. Global Feminism, 1850 to Present. (4) (Same as Women's Studies M186A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Introduction to movements for women's rights (educational, political, economic, sexual, and reproductive) around world and over one and one-half centuries. P/NP or letter grading.

188. Special Courses in History. (4) Lecture, three hours. Departmentally sponsored experimental or temporary courses, such as those taught by visiting faculty members. May be repeated for credit with topic change. P/NP or letter grading.

191A-191P. Capstone Seminars: History. (4 each) Seminar, three hours. Designed for seniors. Limited to 15 students meeting with faculty member. Organized on topics basis with reading, discussion, and development of culminating project. May be repeated once for credit. P/NP or letter grading. **191A.** Ancient History; **191B.** Medieval; **191C.** Europe; **191D.** U.S.; **191E.** Latin America; **191F.** Near East; **191G.** East Asia; **191I.** Science/Technology; **191J.** Africa; **191K.** Religion; **191L.** Jewish History; **191M.** Southeast Asia; **191N.** India; **191O.** World History; **191P.** Historical Theory.

M191DC. CAPP Washington, DC, Research Seminars. (8) (Same as Political Science M191DC and Sociology M191DC.) Seminar, three hours; laboratory, 24 hours. Limited to CAPP Program students. Seminars for undergraduate students in Center for American Politics and Public Policy's program in Washington, DC. Focus on development and execution of original empirical research based on experiences from Washington, DC-based field placements. Study of variety of qualitative methods (observation, interviewing, etc.), with comparison to quantitative analysis. Examination of features of solid and significant research; intensive writing. Letter grading.

M194DC. CAPP Washington, DC, Research Seminars. (4) (Same as Political Science M194DC and Sociology M194DC.) Seminar, three hours. Limited to CAPP Program students in Winter Quarter. Seminars for undergraduate students in Center for American Politics and Public Policy's program in Washington, DC. Focus on development and execution of original empirical research based on experiences from Washington, DC-based field placements. Study of variety of qualitative methods (observation, interviewing, etc.), with comparison to quantitative analysis. Examination of features of solid and significant research; intensive writing. Letter grading.

195. Community or Corporate Internships in History. (4) Tutorial, three hours. Limited to juniors/seniors. Internship in supervised setting in community agency or business. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for credit. Individual contract with supervising faculty member required. P/NP grading.

M195DC. CAPP Washington, DC, Internships. (4) (Same as Political Science M195DC and Sociology M195DC.) Tutorial, four hours. Limited to junior/senior CAPP Program students. Internships in Washington, DC, through Center for American Politics and Public Policy. Students meet on regular basis with instructor and provide periodic reports of their experience. Individual contract with supervising faculty member required. P/NP grading.

197. Individual Studies in History. (4) Tutorial, three hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading

and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

198A. Honors Research in History. (4) Tutorial, to be arranged. Course 198A is requisite to 198B, which is requisite to 198C. Limited to juniors/seniors. Development of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for maximum of 16 units. Individual contract required. Letter grading.

198B. Honors Research in History. (4) Tutorial, to be arranged. Requisite: course 198A. Limited to juniors/seniors. Continued development of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for maximum of 16 units. Individual contract required. In Progress grading (credit to be given only on completion of course 198C).

198C. Honors Research in History. (4) Tutorial, to be arranged. Requisite: course 198B. Limited to juniors/seniors. Completion of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for maximum of 16 units. Individual contract required. Letter grading.

199. Directed Research in History. (4) Tutorial, three hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit; History majors limited to 8 units. Individual contract required. P/NP or letter grading.

Graduate Courses

200A-200U. Advanced Historiography. (4 each) Seminar, three hours. May be repeated for credit. **200A.** Ancient Greece; **200B.** Ancient Rome; **200C.** Medieval; **200D.** Europe; **200H.** U.S.; **200I.** Latin America; **200J.** Near East; **200K.** India; **200L.** China; **200M.** Japan; **200N.** Africa; **200O.** Science/Technology; **200P.** History of Religions; **200Q.** Theory of History; **200R.** Jewish History; **200S.** Armenia and Caucasus; **200T.** Southeast Asia; **200U.** Psychohistory.

M200V. Advanced Historiography: Afro-American. (4) (Same as Afro-American Studies M200A.) Seminar, three hours. May be repeated for credit.

M200W. Advanced Historiography: American Indian Peoples. (4) (Same as American Indian Studies M200A.) Lecture, 90 minutes; seminar, 90 minutes. Introduction to culture-histories of North American Indians and review of Indian concepts of history. Stereotypical approach to content and methodologies related to Indian past that is interdisciplinary and multicultural in its scope. Letter grading.

200X. Advanced Historiography: Oral History. (4) Seminar, three hours. Introduction to practice, method, and theory of oral history.

200Y. Advanced Historiography: Application of Economics to History. (4) Discussion, three hours.

200Z. Advanced Historiography: Chicano. (4) Discussion, three hours. Graduate survey of leading literature in Chicano history, with emphasis on new methodological and theoretical approaches in the field.

201A-201U. Topics in History. (4 each) Seminar, three hours. Graduate courses involving reading, lecturing, and discussion of selected topics. May be repeated for credit. When concurrently scheduled with course 191, undergraduates must obtain consent of instructor to enroll. S/U or letter grading. **201A.** Ancient Greece; **201B.** Ancient Rome; **201C.** Medieval; **201D.** Early Modern Europe; **201E.** Modern Europe; **201F.** Russia/Eastern Europe; **201G.** Britain; **201H.** U.S.; **201I.** Latin America; **201J.** Near East; **201K.** India; **201L.** China; **201M.** Japan; **201N.** Africa; **201O.** Science/Technology; **201P.** History of Religions; **201Q.** Theory of History; **201R.** Jewish History; **201S.** Armenia and Caucasus; **201T.** Southeast Asia; **201U.** Psychohistory.

202A-202B. Seminars: Comparative Modern Economic History. (4-4) Seminar, three hours. Course 202A is requisite to 202B. Designed for graduate students. Study of problems of modern economics in the 19th and 20th centuries, including such topics as in-

dustrialization, growth, demography, development, and economic change. In Progress (202A) and letter (202B) grading.

M203A-M203B. Social Theory and Comparative History. (4-4) (Same as Political Science M291A-M291B and Sociology M296A-M296B.) Seminar, three and one-half hours every other week. Introduction to historically rooted social theory and theoretically sensitive history, following program of Center for Social Theory and Comparative History. Each course may be taken independently for credit. S/U or letter grading.

M203C. Theories in Cultural History. (4) (Same as Sociology M296C.) Discussion, three hours. Introduction to social, linguistic, semiotic, or other new interpretive theories and practices developed in other fields and applied to historical material. Letter grading.

M207. Seminar: Ancient Mesopotamia. (4) (Same as Ancient Near East M250.) Seminar, three hours. Selected topics on political, social, and intellectual history of ancient Mesopotamia. May be repeated for credit.

CM209. Israeli Legal History. (1 to 5) (Same as Law M336.) Lecture, three hours. Israel is settler society inspired by utopian ideology but based on war and violence. Like U.S., Israel is imperfect democracy committed to notions of equality yet divided along class, gender, and ethnic lines. Law plays role in shaping identity, framing political discourse, and mediating social conflicts. How do law and society interact in Israel and how can Israeli experience illuminate themes common to both jurisdictions? Introduction to Israeli history and legal history, with focus on three periods: late Ottoman, British mandate, and first two decades after Israeli independence. Topics include legal reforms in late Ottoman period, reception of English law after British conquest, law and national identity, postindependence legal change and continuity, formalism and rights discourse, ethnic conflict and land law, influence of political ideologies on commercial law, gender, religion, and law, role of courts in shaping historical memory (Holocaust). Concurrently scheduled with course C109C. S/U or letter grading.

M210. Topics in Ancient Iranian History. (4) (Same as Ancient Near East M208 and Iranian M210.) Seminar, three hours. Varying topics on Elamite, Achaemenid, Arsacid, and Sasanian history. May be repeated for credit. S/U or letter grading.

211A-211B. Seminars: Armenian History. (4-4) Seminar, three hours. Course 211A is requisite to 211B. In Progress (211A) and letter (211B) grading.

212. Methods in Armenian Oral History. (4) Seminar, three hours. Uses and techniques of Armenian oral history; preinterview, interview, and postinterview procedures; methods of compilation and evaluation. Field assignments, interviews, and summaries and/or paper based on interviews. S/U or letter grading.

214. Topics in World History. (4) Discussion, three hours. Graduate seminar utilizing world-historical perspective to examine variety of broad themes in human history. Topics vary annually. Letter grading.

215A-215B. Seminars: Ancient History. (4-4) Seminar, three hours. Course 215A is requisite to 215B. In Progress (215A) and letter (215B) grading.

216A-216B. Seminars: Byzantine History. (4-4) Seminar, three hours. Course 216A is requisite to 216B. In Progress (216A) and letter (216B) grading.

217. Sources and Handbooks of Medieval History. (4) Seminar, three hours. Preparation: reading knowledge of German or French. Introduction to types of medieval source materials and the handbooks needed to use them.

M218. Paleography of Latin and Vernacular Manuscripts, 900 to 1500. (4) (Same as Classics M218, English M215, and French M210.) Lecture, three hours; discussion, two hours. Introduction to history of Latin and vernacular manuscript book from 900 to 1500 to (1) train students to make informed judgments with regard to place and date of origin, (2) provide training in accurate reading and transcription of later medieval scripts, and (3) examine manuscript book as witness to changing society that produced it.

Focus on relationship between Latin manuscripts and vernacular manuscripts with regard to their respective presentation of written texts. S/U or letter grading.

221A-221B. Seminars: Medieval History. (4-4) Seminar, three hours. Course 221A is requisite to 221B. In Progress (221A) and letter (221B) grading.

225. Colloquium for Entering Graduate Students in Modern European History. (4) Seminar, three hours. Normally limited to and required of all modern European history graduate students. Introduction to topics, methods, and historiography of modern European history.

226A-226B. Seminars: Italian Renaissance. (4-4) Seminar, three hours. Course 226A is requisite to 226B. In Progress (226A) and letter (226B) grading.

227A-227B. Seminars: Reformation. (4-4) Seminar, three hours. Course 227A is requisite to 227B. In Progress (227A) and letter (227B) grading.

229A-229B. Seminars: Early Modern European History. (4-4) Seminar, three hours. Course 229A is requisite to 229B. In Progress (229A) and letter (229B) grading.

M230A-M230B. Seminars: Modern European History. (4-4) (Same as Art History M241A-M241B.) Seminar, three hours. Course M230A is requisite to M230B. May be repeated for credit with consent of adviser. In Progress (M230A) and letter (M230B) grading.

231A-231B. Seminars: Modern European Intellectual and Cultural History. (4-4) Seminar, three hours. Course 231A is requisite to 231B. In Progress (231A) and letter (231B) grading.

232A-232B. Seminars: French History of 19th and 20th Centuries. (4-4) Seminar, three hours. Course 232A is requisite to 232B. In Progress (232A) and letter (232B) grading.

233A-233B. Seminars: Russian/Soviet History. (4-4) Seminar, three hours. Course 233A is requisite to 233B. In Progress (233A) and letter (233B) grading.

234A-234B. Seminars: Modern History of Spain, Portugal, and Italy. (4-4) Seminar, three hours. Course 234A is requisite to 234B. In Progress (234A) and letter (234B) grading.

235A-235B. Economic History of Europe, 1780 to 1939. (4-4) Seminar, three hours. Course 235A is requisite to 235B. Analysis of internationalization of European world economy, emergence of Western core and its relation with European peripheries. Comparative analysis on different regions, stressing main characteristics of postwar European economy. In Progress (235A) and letter (235B) grading.

235C-235D. Economic History of 20th-Century Europe. (4-4) Seminar, three hours. Course 235C is requisite to 235D. Cyclical trend, various economic regimes, and integration process of Europe. In Progress (235C) and letter (235D) grading.

M236A. Proseminar: Political Psychology. (4) (Same as Political Science M261A and Psychology M228A.) Seminar, three hours. Introduction to political psychology: psychobiography, personality and politics, mass attitudes, group conflict, political communication, and elite decision making.

236B-236C. Seminars: Psychohistory. (4-4) Seminar, three hours. Course 236B is requisite to 236C. Exploration of individual and group psychological processes and their uses in historical research. In Progress (236B) and letter (236C) grading.

239A-239B. Seminars: English History—Middle Ages. (4-4) Seminar, three hours. Course 239A is requisite to 239B. In Progress (239A) and letter (239B) grading.

240A-240B. Seminars: English History—Modern History. (4-4) Seminar, three hours. Course 240A is requisite to 240B. In Progress (240A) and letter (240B) grading.

241A-241B. Seminars: German History. (4-4) Seminar, three hours. Course 241A is requisite to 241B. Designed for graduate students. In Progress (241A) and letter (241B) grading.

242. Colloquium: European History. (2) Designed for graduate students. Forum for critical discussion of work of students and invited scholars. Presentation of student dissertation prospectuses during their third or fourth year in residence. S/U grading for students presenting papers.

244A-244B. Seminars: British Empire History. (4-4) Seminar, three hours. Course 244A is requisite to 244B. In Progress (244A) and letter (244B) grading.

245. Colloquium: U.S. History. (4) Seminar, three hours. Normally limited to and required of all entering graduate students in U.S. history. Critical introduction to historical method, with emphasis on new methodological and conceptual approaches, use of source materials, and current state of U.S. historiography.

246A-246B-246C. Introduction to U.S. History. (4-4-4) Seminar, three hours. Graduate survey of significant literature dealing with U.S. history from the Colonial period to the present. Each course may be taken independently for credit. **246A.** Colonial Period; **246B.** 1790 to 1900; **246C.** 20th Century.

247A-247B. Seminars: Early American History. (4-4) Seminar, three hours. Course 247A is requisite to 247B. In Progress (247A) and letter (247B) grading.

249A-249B. Seminars: Jacksonian America. (4-4) Seminar, three hours. Course 249A is requisite to 249B. In Progress (249A) and letter (249B) grading.

250A-250B. Seminars: U.S. History of Middle 19th Century. (4-4) Seminar, three hours. Course 250A is requisite to 250B. In Progress (250A) and letter (250B) grading.

251A-251B. Collaborative Research Seminars: American History. (4-4) Seminar, three hours. Research seminars taught jointly by two faculty members. In Progress (251A) and letter (251B) grading. **251A.** Common readings and development of individual research projects. **251B.** Requisite: course 251A. Research, writing, and critical discussion of draft papers.

252A-252B. Seminars: Recent U.S. History to 1930. (4-4) Seminar, three hours. Course 252A is requisite to 252B. In Progress (252A) and letter (252B) grading.

253A-253B. Seminars: Recent U.S. History since 1930. (4-4) Seminar, three hours. Course 253A is requisite to 253B. In Progress (253A) and letter (253B) grading.

254A-254B. Seminars: U.S. Social and/or Intellectual History. (4-4) Seminar, three hours. Course 254A is requisite to 254B. In Progress (254A) and letter (254B) grading.

255A-255B. Business Enterprise and American Culture. (4-4) Seminar, three hours. Course 255A is requisite to 255B. In Progress (255A) and letter (255B) grading.

256A-256B. Seminars: America in World. (4-4) Seminar, three hours. Course 256A is requisite to 256B. In Progress (256A) and letter (256B) grading.

257A-257B. Seminars: U.S. Urban History. (4-4) Seminar, three hours. Course 257A is requisite to 257B. In Progress (257A) and letter (257B) grading.

258A-258B. Seminars: Working Class History. (4-4) Seminar, three hours. Course 258A is requisite to 258B. In Progress (258A) and letter (258B) grading.

M259A-M259B. History of Women. (4-4) (Same as Women's Studies M259A-M259B.) Seminar, three hours. Course M259A is requisite to M259B. History of women's social and political issues seen in U.S. and comparative context. In Progress (M259A) and letter (M259B) grading.

260A-260B. Seminars: Native American History. (4-4) Seminar, three hours. Course 260A is requisite to 260B. In Progress (260A) and letter (260B) grading.

M260C. Native American Revitalization Movements. (4) (Same as Anthropology M238.) Lecture, two hours; discussion, one hour. Examination of revitalization movements among native peoples of North America (north of Mexico). Specific revitalization includes Handsome Lake, 1870 and 1890 Ghost Dances, and Peyote Religion. Letter grading.

M260D. Native American Historical Demography. (4) (Same as Anthropology M287Q.) Lecture, two hours; discussion, one hour. Examination of population history of Native Americans north of Mexico prior to and following contacts with Europeans, Africans, and others, circa 1492. Emphasis on number of American Indians and other Native Americans, their decline following European contact, and their recent resurgence. Letter grading.

261A-261B. Seminars: Afro-American History. (4-4) Seminar, three hours. Course 261A is requisite to 261B. Social and political history of the Afro-American, including emphasis on development and structure of race relations in America; racial concepts and dilemmas, black and white. In Progress (261A) and letter (261B) grading.

262A-262B. Seminars: Chicano History. (4-4) Seminar, three hours. Course 262A is requisite to 262B. In Progress (262A) and letter (262B) grading.

263A-263B. Seminars: History of American West. (4-4) Seminar, three hours. Course 263A is requisite to 263B. In Progress (263A) and letter (263B) grading.

M264. History of American Education. (4) (Same as Education M201C.) Discussion, three hours. History of educational thought and of social forces impinging on American education from 1880s to present. Analysis of relation between these ideas and forces, and aims and practices of American education today. S/U or letter grading.

M265. Latin American Research Resources. (4) (Same as Information Studies M225 and Latin American Studies M200.) Seminar, three hours. General and specialized materials in fields concerned with Latin American studies. Library research techniques provide experience and competency required for future bibliographic and research sophistication as basis for enhanced research results.

266A-266B. Seminars: Colonial Latin American History. (4-4) Seminar, three hours. Course 266A is requisite to 266B. In Progress (266A) and letter (266B) grading.

M266C. Analyzing Historical Texts. (4) (Same as Linguistics M238.) Seminar, four hours. Designed for graduate students. Analysis of linguistic structure and ethnohistorical context of legal and other documents written by native-speaking scribes and translators. Topics include paleographic technique and text analysis software. May be repeated for credit. S/U grading.

267A-267B. Seminars: Latin American History, 19th and 20th Centuries. (4-4) Seminar, three hours. Course 267A is requisite to 267B. In Progress (267A) and letter (267B) grading.

M268A-M268B. Seminars: Recent Latin American History. (4-4) (Same as Latin American Studies M268A-M268B.) Seminar, three hours. Course M268A is requisite to M268B. Reading knowledge of Spanish and Portuguese normally required. Seminar devoted to selected topics of interdisciplinary nature. In Progress (M268A) and letter (M268B) grading.

275A-275B-275C. Colloquia: African History. (4-4-4) Seminar, three hours. Designed for all entering and continuing graduate students in African history. Source identification, research methodologies, historiographical traditions, historical interpretation, approaches to teaching, and research design. Forum for critical discussion of dissertation prospectuses and work in progress. Each course may be taken independently for credit. S/U or letter grading.

278A-278B. Seminars: African History. (4-4) Seminar, three hours. Course 278A is requisite to 278B. Topics in African history, with focus on producing papers of publishable quality. In Progress (278A) and letter (278B) grading.

M280. China Studies: Discipline, Methods, Debates. (2) (Same as Chinese M202.) Seminar, two hours. Introduction to study of China as practiced in humanities and social science disciplines. S/U grading.

M281. China—Seminar: Classical Historiography and Readings in Classical Studies. (4) (Same as Chinese M201.) Discussion, three hours. Preparation: two years of classical Chinese or working knowledge of classical Chinese. Readings in historiography and selected genres of historical documents. Letter grading.

282A-282B. Seminars: Chinese History. (4-4) Seminar, three hours. Course 282A is requisite to 282B. In Progress (282A) and letter (282B) grading.

285A-285B. Seminars: Japanese History. (4-4) Seminar, three hours. Course 285A is requisite to 285B. In Progress (285A) and letter (285B) grading.

M286. Japan in Age of Empire. (4) (Same as Anthropology M276 and Asian M292.) Seminar, three hours. Designed for graduate students. Since late 19th century, Japan expanded its empire into East and Southeast Asia. Coverage of that period and array of anthropological studies conducted in Japan's colonies and occupied areas in this hardly explored area of study of colonialism. S/U or letter grading.

288A-288B. Seminars: South Asia. (4-4) Seminar, three hours. Course 288A is requisite to 288B. In Progress (288A) and letter (288B) grading.

289A-289B. Seminars: Southeast Asia. (4-4) Seminar, three hours. Course 289A is requisite to 289B. In Progress (289A) and letter (289B) grading.

291A-291B. Seminars: Jewish History. (4-4) Seminar, three hours. Course 291A is requisite to 291B. Studies in intellectual and social history of Jewish people from ancient times to modern period. In Progress (291A) and letter (291B) grading.

293A-293B. Seminars: History of Religions. (4-4) Seminar, three hours. Course 293A is requisite to 293B. In Progress (293A) and letter (293B) grading.

294A-294B. Western Science, Religion, and Political Economy, 1600 to 1830. (4-4) Seminar, three hours. Study of science integrated within matrix of religious belief commonplace in early modern Europe and, to a lesser extent, in American colonies. Examination of relationship of both cultural matrices to political and economic change. S/U or letter grading.

295. Theories of Scientific Change. (4) Seminar, three hours. Historical and philosophical perspectives on science, focusing on rationality of scientific change and logic and psychology of scientific discovery. Readings and seminar-style discussions of such authors as Popper, Kuhn, Toulmin, Lakatos, Holton, Buchdahl, Feyerabend, and others.

M296. History of Statistics. (4) (Same as Statistics M245.) Seminar, three hours. History of statistics ranges over vast and diverse territory. Development of mathematical methods; philosophical, political, and social issues that were linked to their emergence and use. S/U or letter grading.

297A-297B. Seminars: History of Science. (4-4) Seminar, three hours. Course 297A is requisite to 297B. In Progress (297A) and letter (297B) grading.

M298. Interdisciplinary Studies in 17th and 18th Centuries. (4) (Same as English M298.) Discussion, four hours. Topics vary according to participating faculty. May be repeated for credit. S/U or letter grading.

M299. Interdisciplinary American Studies. (6) (Same as English M299.) Discussion, four hours. Readings, discussion, and papers on common theme, team-taught by faculty members from different departments. Topics vary according to participating faculty. May be repeated for credit with consent of instructors. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

490. Writing Workshop for Graduate Students. (4) Tutorial, three hours. Writing workshop on students' papers-in-progress. Analysis and group discussion of rhetorical and stylistic principles, illustrated in stu-

dents' own and in professional historians' work, help students improve their own writing. May be repeated once. S/U grading.

495. Teaching History. (4) Seminar, to be arranged. Designed for graduate students. Required of all new teaching assistants. Lectures, readings, discussions, and practice teaching sessions within the structure of a seminar. Students receive unit credit toward full-time equivalence but not toward the nine-course requirement for M.A. degree. S/U grading.

501. Cooperative Program. (2 to 8) Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. Directed Studies. (1 to 8) Limited to graduate students. Individual directed reading arranged with professor. M.A. candidates may take this course only once. Number of times Ph.D. candidates may take this course is subject to consent of graduate studies committee. S/U or letter grading.

597. Directed Studies for Graduate Examinations. (1 to 8) Preparation for M.A. comprehensive examination or Ph.D. qualifying examinations. S/U grading.

599. Ph.D. Research and Writing. (1 to 8) Preparation: advancement to Ph.D. candidacy. S/U grading.

HISTORY/ART HISTORY

*Interdepartmental Program
College of Letters and Science*

UCLA
100 Dodd Hall
Box 951417
Los Angeles, CA 90095-1417

(310) 825-3992
fax: (310) 206-1903
<http://www2.humnet.ucla.edu/ahidp/index.php>

Steven D. Nelson, Ph.D., *Chair*

Faculty Administrative Committee

Robert L. Brown, Ph.D. (*Art History*)
Ronald J. Mellor, Ph.D. (*History*)
Steven D. Nelson, Ph.D. (*Art History*)
Debra L. Silverman, Ph.D. (*Art History, History*)

Scope and Objectives

The interdisciplinary major in History/Art History allows students to study the relationship between art history and the history of society, politics, and culture.

Undergraduate Study

The UCLA Academic Senate approved the disestablishment of the interdepartmental program and major in History/Art History effective Spring Quarter 2009. Students already admitted to the major have until the end of Spring Quarter 2013 to complete the requirements for the B.A. degree. Students interested in combining courses in history and in art history may consider a major in one of the two academic disciplines and a minor in the other, or a double major in History and in Art History.

History/Art History B.A.

Lower division history and art history courses may be applied toward the general education requirements; a course taken to satisfy the American History and Institutions requirement

may be applied toward the history section of the interdepartmental major. Each course must be taken for a letter grade.

Students wanting to confer with a counselor regarding program planning and major requirements should contact the history/art history counselor at (310) 825-3992.

Preparation for the Major

Required: History 1A, 1B, 1C; two courses from Art History 50, 51, 54, 57; one course from Art History 55A, 55B, 56A, 56B.

Transfer Students

Transfer applicants to the History/Art History major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: one year of history of Western civilization, two art history courses in ancient, Renaissance and baroque, medieval, or modern art, and one non-Western art history course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: One course from History 97A through 97O or 100; one course from 191A through 191O or 197; and courses as indicated in the following groups:

Group A: Two non-European history courses from History M103A, M103B, M104, 105A, 105B, 105C, 106A, 107A through 107D, 108A, 108B, 112A, 116A, 116B, M116C, 157A, 157B, 159, 160A, 160B, 162A, 162B, 162C, M164A, 164B, 164C, 164E, 166A, 166B, 166C, 167A, 167B, 167C, 168A, 168B, 169A, 169B, 170A through 170D, 172A, 172B, 172C, 173A, 173C, 174A, 174B, 174C, 176A, 176B, 185B, 185C, M185D

Group B: Two U.S. history courses from History 138A, 138B, 138C, 139A, 139B, 140A, 140B, 140C, 141A, 141B, 142A, 142B, 142C, 143A, 143B, 144, M144C, 145A, 145B, 146A through 146D, 147A through M147D, 149A, 149B, M150A through M150E, M151A, M151B, 152, 153, 154, M155, M175B, 179C

Group C: Two European history courses from History 112B, 112C, 113A, 113B, 114A, 114B, 114C, 119A through 119D, 120A, 120B, 121A through 121F, 122A through 122F, 123A, 123B, 123C, 124A, 124B, 124C, 125A, 125B, 125C, 126, M127A through 127D, 128A, 128B, 129A, 129B, 130A, 130B, 131A, 131B, M133A, M133B, 136A, 136B, 136C, 137A, 137B, 179A, 179B, M180B, M182A through 183B, M184B, 186A, 186B, 186C

Group D: Three Western art history courses from Art History M101A, M101B, M102A through M102K, 106A through 106D, 108A, 108B, 108C, C109A through 109D, 110A, 110B, 110C, 110E through C110H, C112A through CM112D, C150A through 150D

Group E: Three non-Western art history courses from Art History 104A, 104B, C104C, 110G, 114A, 114C through 114F, C115A

through C115F, C117A through C117D, 118A, 118C, 118D, 118E

Group F: Two art history elective courses selected from the above lists. Students may also take Art History 100, C103A, C103B, C103C, 127, 197, 199 to meet this requirement

Honors Program

The honors program is designed for History/Art History majors who are interested in carrying out an independent research project that culminates in an honors thesis of approximately 30 pages. The program gives qualified students the opportunity to work closely with individual professors on an in-depth supervised research and writing project.

All junior and senior History/Art History majors who have completed a minimum of four upper division art history courses with a grade-point average of 3.5 or better and an overall GPA of 3.0 or better are eligible to apply. Consult the art history undergraduate counselor one term prior to beginning the honors program.

To qualify for graduation with honors, students must (1) complete all requirements for the major, (2) have a cumulative grade-point average of 3.5 or better in upper division courses in the major and an overall GPA of 3.0 or better, and (3) complete Art History 198A and 198B with grades of A- or better.

To qualify for graduation with highest honors, students must (1) complete all requirements for the major, (2) have a cumulative GPA of 3.85 or better in upper division courses in the major and an overall GPA of 3.65 or better, and (3) complete Art History 198A and 198B with grades of A.

HONORS COLLEGIUM

College of Letters and Science

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<http://www.honors.ucla.edu>

Robert A. Gurval, Ph.D., *Chair*

Faculty Advisory Committee

Esteban C. Dell'Angelica, Ph.D. (*Human Genetics*)
Robert A. Gurval, Ph.D. (*Classics*)
Daniel H. Lowenstein, LL.B. (*Law*)
Jeffrey H. Miller, Ph.D. (*Microbiology, Immunology, and Molecular Genetics*)
Zrinka Stahuljak, Ph.D. (*French and Francophone Studies*)
Brian D. Walker, Ph.D. (*Political Science*)

Scope and Objectives

The Honors Collegium is an unusual educational alternative, with an interdisciplinary emphasis. The collegium encourages animated discussion among students, as well as between students and professors. It seeks to pro-

mote scholarly exchange across the major disciplines in the University. And it offers small classes and individual attention.

Undergraduate Study

Each Honors Collegium course is staffed by a director who is distinguished in teaching and scholarship and may include a variable number of guest lecturers and additional specialists in their fields. Some courses satisfy general education requirements and serve as preparation for numerous majors in the College of Letters and Science. Counselors are available in the Honors Programs Office, A311 Murphy Hall, to advise and help students plan an integrated academic program.

Courses in the Honors Collegium are mainly interdisciplinary seminars, and the courses vary each year. Refer to the *Schedule of Classes* for current course listings. An Honors Collegium quarterly brochure, that gives detailed course descriptions of current offerings, is available at <http://www.honors.ucla.edu/hchome.html>.

Honors Collegium

Lower Division Courses

- 2. Comparative Genocide.** (4) Lecture, four hours; discussion, one hour. Social comparative study of genocide, combining theoretical concepts with case studies (such as Armenia, the Holocaust, American Indians, Uganda under Amin and Obote, etc.). P/NP or letter grading.
- 4. Immigrants and American Dream.** (5) Seminar, three hours. Study of process of attaining the "American Dream," including analysis of different perspectives on immigration and assessment of success based on such measures as occupational achievement, home ownership, and political participation. P/NP or letter grading.
- 5. Representing Cleopatra: History, Drama, and Film.** (5) Seminar, three hours. Examination of legendary queen of Egypt as seen by her contemporaries and study of origins of myths about her and ways in which subsequent cultures and eras have imagined her in literary, visual, and cinematic representations. P/NP or letter grading.
- 6. Energy Issues: Before and Now.** (5) Seminar, three hours. Review of physics and chemistry of concepts of energy, history over ages of turning of discoveries into products in this area, including use of fossil fuel, and discussion of current energy issues, including alternative energies. P/NP or letter grading.
- 7. Saint and Heretic: Joan of Arc and Gilles de Rais, History and Myth.** (5) Seminar, three hours. Examination of both history of Joan of Arc and Gilles de Rais and of way in which, over time, their histories became legends, driven by various agendas including national identity, beatification, and gender politics. P/NP or letter grading.
- 8. Communication among Organisms.** (4) Lecture, three hours; discussion, two hours. Study of communication among a variety of taxonomic groups ranging from single-celled organisms to plants, whales, and nonhuman primates. P/NP or letter grading.
- 10. Colonial Legacies: Childhood and Islam in Francophone Africa.** (5) Seminar, three hours. Through broad range of novels and films from Guinea, Cameroon, Senegal, and Mali, study of cultures of Francophone sub-Saharan Africa, including colonialism, polygamy, education, female circumcision, and racism. P/NP or letter grading.
- 11W. Postmodern Culture.** (5) Seminar, four hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Exploration of theories and art (literature, music, film, fine art) that emerged after World War II in what has come to be known as postmodern era. Art criticizes master narratives of earlier age and fosters fragmentation, skepticism toward universal truth, commodification of knowledge, media creating reality, and globalization in industry and society. Satisfies Writing II requirement. Letter grading.
- 12. Sacred Form: Literature and Poetry in India from Bronze Age to Premodern Times.** (4) Seminar, three hours. Exploration of cultural and literary development in India from early religious poetry (prior to 1000 B.C.) to broad range of literary styles and diverse religious and philosophical movements through classical, medieval, and premodern period. P/NP or letter grading.
- 13. Fantastic Voyage: From Homer to 2001.** (5) Seminar, three hours. Study of phenomenon of fantastic or imaginary voyage from Homer's *Odyssey* to Stanley Kubrick's *2001: A Space Odyssey*. P/NP or letter grading.
- 14. Interaction of Science and Society.** (4) Seminar, three hours. Examination of interaction of science and society and effects of this interaction on history, development of societies, evolution of revolutionary ideas as modeled in Galileo, Darwin, and others, and selected contemporary issues such as genetic engineering and war against infectious diseases. P/NP or letter grading.
- 15. Acting Myth.** (4) Seminar, three hours. Interdisciplinary approach to literature and acting through study of texts and mythologies from variety of Indo-European and Near Eastern sources; students learn acting techniques in directed scenes from the texts. P/NP or letter grading.
- 16. Science of Singing Voice.** (5) Seminar, three hours. Study of methods, including computer laboratory work, of quantifying aspects of voice production. Study of students' own vocal productions as well as recorded samples of famous singers. P/NP or letter grading.
- 18. Trial of Socrates.** (5) Seminar, three hours. Examination of life and times of Socrates and trial that led to his execution, including in-class staging. P/NP or letter grading.
- 20. What Is This Thing Called Science?: Nature of Modern Science.** (5) Lecture, three hours; discussion, one hour. Exploration of difference between science and other systems of knowledge; study of history and philosophy of science and examination of its reliability as objective knowledge. P/NP or letter grading.
- 21W. Rise and Fall of Modernism.** (6) Seminar, three hours; writing laboratory, two hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Study of early and middle 20th-century's attempt to construct significance in a general climate of disillusionment by way of literature, literary criticism, and other intellectual movements. Satisfies Writing II requirement. Letter grading.
- 23. Political Dissidence Today and in Ancient Greece: Trial and Death of Socrates in Its Classical and Legal Context.** (5) Seminar, three hours. Study of trial and death of Socrates by examining its relevance today to legal treatment of dissent and civil disobedience in the U.S. and to variety of contemporary theories and strategies of dissent. Introduction to Greek legal system, values that animated that system, and new ways to think about roles of law. P/NP or letter grading.
- 24. Three African Civilizations.** (5) Seminar, four hours; film viewing, two hours. Study of development of three major African civilizations through their arts, with focus on arts of Mali, Ethiopia, and Kongo from about 100 B.C.E. to present. P/NP or letter grading.
- 25. Artificial Intelligence: Machines as People, People as Machines.** (5) Seminar, three hours; laboratory, one hour. Programming knowledge not required. Examination of human cognitive abilities and study of different historical approaches to programming human cognitive abilities and behaviors into computers, with focus on problem solving. P/NP or letter grading.
- 26. Representing Medicine: Art, Literature, and Film.** (5) Seminar, four hours. Limited to Freshman Summer Program students. Exploration of interdisciplinary dimensions of medical representation, with emphasis on cross-cultural 20th-century portrayals of profession, including representations of doctor/patient relations, healthcare sites and circumstances, aging, alternative treatments, and mental health. Offered in summer only. P/NP or letter grading.
- 27. Theories of Exchange: Social Life of Gifts and Commodities.** (4) Seminar, three hours. Study of how creation, maintenance, and dissolution of social and political relations are modulated through exchange of gifts and/or commodities in different contexts and different societies. P/NP or letter grading.
- 28. Perils of Living in Space: Introduction to Space Weather.** (5) Seminar, four hours. Preparation: high school calculus. Study of conditions in space that affect Earth and its systems, conditions that are consequences of behavior of sun, nature of Earth's magnetic field and atmosphere, and our location in solar system. P/NP or letter grading.
- 30. Vietnam War and American Culture.** (4) Seminar, three hours. Cultural, social, and political implications of the Vietnam War on American society through examination of photography, journalism, personal narrative, political commentary, drama, and fiction. P/NP or letter grading.
- 34W. Construction and Migration of Knowledge: Rhetoric and Media for Information Age.** (6) Seminar, three hours; writing laboratory, two hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Print and electronic genres, both mainstream and alternative, through study of rhetorics of popularization and of canonization. Former defines what happens when esoteric knowledge travels to nonspecialist readers; latter explains how ephemeral information becomes institutionalized. Satisfies Writing II requirement. Letter grading.
- 35. Scientific Method: Critical Inquiry into Question of Extraterrestrial Life.** (4) Lecture, three hours; discussion, one hour. Course does not presume to answer question of whether or not there is intelligent life in the universe but rather uses this question as a pedagogic tool to introduce central ideas, techniques, and limitations of the scientific method—what questions would need to be asked, what scientific knowledge would be needed, and what obstacles would have to be overcome just to address this question. P/NP or letter grading.
- 36. Gender, Work, and Family: Public Policy Challenge.** (5) Seminar, three hours. Examination of challenge of reconciling work and family commitments for working people of both genders, with particular emphasis on recent changes in labor force participation, on ways in which gender, race, and class lines affect time allocation, and on public policy options that might support work-family balance. Primary focus on the U.S., with look at how other advanced industrial societies—specifically Western Europe—have addressed these issues. P/NP or letter grading.
- 37. Autobiography and Memoir.** (5) Seminar, three hours. Study of memoirs and autobiographies of accomplished people (writers, scientists, statesmen, soldiers, adventurers, politicians, singers, artists, businessmen) to discuss what they did or did not do with their lives and then to try and understand one's own life by writing about specific incidents and broader philosophical thoughts. P/NP or letter grading.
- 38W. Body-Mind Literacy.** (6) Seminar, three hours; writing laboratory, two hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Study of history, philosophy, and science of relationship between body and mind, including writing, critical thinking, and praxis. Satisfies Writing II requirement. Letter grading.
- 39. Early Modern French Culture in Film.** (5) Seminar, three hours. Using films and texts, study of development of courtly culture in France from Renaissance to its demise in Enlightenment and its replacement with new ideas of nature, education, and civic virtue. P/NP or letter grading.

40W. Transformations of Cultural Stories across Disciplines and Texts. (5) Seminar, four hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Tracing of writing and rewriting of traditional story types, specifically the adventure story as represented by Defoe's *Robinson Crusoe* and its remanifestations in Coetzee's *Foe* and the fairy tale as represented by *Cinderella* and its various cross-cultural remanifestations. Satisfies Writing II requirement. Letter grading.

41. Rhetoric on Trial. (5) Seminar, three hours. Historical and literary study of theory and practice of classical rhetoric in Greco-Roman antiquity; analysis of relevance of ancient rhetorical techniques to contemporary forensic practices in rules of evidence, politics, and law. P/NP or letter grading.

42. Negotiating Conflict in Diverse Cultures. (5) Seminar, three hours; fieldwork, one hour. Exploration of art and science of negotiations in addressing campus and community conflicts, with focus on positions and interests of disputants, cultural and political context of disputes, and tactics and skills to address conflicts. P/NP or letter grading.

45W. Writing about Life Sciences. (5) Seminar, three hours; discussion, one hour. Enforced requisites: English Composition 3 or 3H or English as a Second Language 36, Life Sciences 2 (may be taken concurrently). Study and practice of writing in life sciences, including popular, literary, and scientific discourse. Satisfies Writing II requirement. Letter grading.

46. Drugs in Society: Interdisciplinary Perspective on Drug Use, Abuse, Treatment, and Intervention. (5) Seminar, three hours. Examination of drug use and abuse and consequent social issues and policies both historically and in the contemporary U.S., including discussion of current research on neurobiological properties of different drugs and corresponding clinical interventions. P/NP or letter grading.

48. Politics of Reproduction. (4) Seminar, three hours. Examination of complex relations between individual, local, and global interests as they shape and reflect reproductive practices, public policy, and exercise of power. P/NP or letter grading.

49. Evidence in Law, Science, History, and Journalism. (4) Seminar, four hours. Rigorous study of ways in which lawyers, scientists, historians, and journalists handle evidence, with aim of advancing cross-disciplinary inquiry to produce a common vocabulary and set of concepts that allow for discussion of evidentiary issues in differing fields of inquiry. P/NP or letter grading.

50W. Writing Science. (6) Seminar, four hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Study and practice of science writing in popular domain in way that integrates sophisticated understanding of science with humane tradition of writing arts; study includes writings by journalists and scientists on variety of topics. Satisfies Writing II requirement. Letter grading.

51. Music and Society. (5) Seminar, four hours. Minimal experience reading music desirable but not required. Analysis of Western art music, with focus primarily, but not exclusively, on music of late-18th through early-20th centuries through multiple analytical prisms: sociological, historical, political, and musical. P/NP or letter grading.

53. American Folk Music, Protest, and Identity. (5) Seminar, three hours. Study of American folk music as prism to investigate more general relationships among cultural boundaries such as musical genres and social categories (race, ethnicity, nation, and generation). P/NP or letter grading.

54. Improvisation and Acting Techniques. (5) Seminar, four hours. Development of acting improvisational techniques based on literature in which students find themselves immersed within characters. Students prepare midterm and final scenes to be fully memorized and performed, as well as study acting techniques. P/NP or letter grading.

55. Culture and History of Utopias. (4) Seminar, three hours. Study of major utopian writings from Thomas More's classical text to recent ecological and

feminist utopian texts, with purpose of uncovering social, intellectual, and cultural landscapes underlying quest for a more perfect society. P/NP or letter grading.

56. Language as Window to Mind. (5) Lecture, four hours; discussion, one hour. Study of topics in language and mind, including language acquisition in children, language representation in brain, relationship between language and other mental abilities, and autonomous nature of language as system of knowledge. P/NP or letter grading.

57. Language, Performance, and Culture. (5) Lecture, three hours. Mixture of lecture and discussion on topic of language and its relationship to performance and culture in 19th and 20th centuries. Study of theorists such as Saussure, Wittgenstein, Stanley Cavell, Judith Butler, and others, playwrights such as Wilde, Stein, and Samuel Beckett, and films such as "His Girl Friday" and "Monkey Business." P/NP or letter grading.

58. Time in Society and History. (5) Seminar, four hours. Examination of concept of time from sociological, philosophical, anthropological, and physical perspectives, including study of how cultures have perceived time, how societies have organized themselves with time, how groups have clashed over time's definition and measurement, and how academics in various disciplines have perceived time. P/NP or letter grading.

59W. Literature and Culture of the American South. (6) Seminar, four hours; writing laboratory, two hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Examination of historical imagination as it is expressed in such writers as William Faulkner, Allen Tate, Flannery O'Connor, Richard Wright, and Zora Neale Hurston; in Civil War and WPA/FSA photography; and in Southern rhetoric and political documentary. Satisfies Writing II requirement. Letter grading.

60. Discovering and Explaining Anomalies of English. (5) Seminar, four hours. Study of linguistic anomalies, historical facts of English that brought about these irregularities, and artificiality of notion of "standard English." P/NP or letter grading.

62. Community and Self-Interest in History of American Culture. (6) Seminar, three hours. Exploration of historical origins of frequently contradictory values that inform American thought and culture: hierarchy and equality, institutional constraints and voluntarism, collective sense of mission and belief in autonomous individual. P/NP or letter grading.

64. Neuroscience and Psychology of Art and Biology of Aesthetics. (5) Seminar, three hours. Interdisciplinary approach to study of premise that beauty, whether of faces, art works, or other subjects, is processed by brain and can be understood as neurological and psychological phenomenon. P/NP or letter grading.

65. Literature and Culture of Francophone World. (5) Seminar, three hours. Study of literary texts from North and sub-Saharan Africa, Guadeloupe, Haiti, Martinique, Vietnam, and France and examination of cultures of colonial and postcolonial Francophone world. P/NP or letter grading.

67. Structure of Physical Reality. (4) Lecture, three hours; discussion, one hour. No special mathematical knowledge required. Course in modern physics, including videos and practical demonstrations, Zen stories, and discussions of what Eastern and Western religions and philosophy in general have to say about forces of nature. Topics include quantum mechanics, microcosm of atoms, and elementary particle physics and philosophical implications. P/NP or letter grading.

68. Systems Thinking: Exploring Order and Chaos in Everyday Life. (5) Seminar, three hours; laboratory, one hour. Exploration of neural networks, genetic algorithms, and system languages as way of defining, measuring, exploring, and creating systems. P/NP or letter grading.

69. Artificial Life and Evolutionary Design: Theory and Practice in Multiagent Modeling. (5) Seminar, five hours. No special mathematical or computer knowledge required. Study of artificial life, artificial intelligence, virtual environments, and evolutionary

computation through both literature on simulations and practical engagement in simulations themselves. P/NP or letter grading.

70A. Genetic Engineering in Medicine, Agriculture, and Law. (5) Lecture, three hours; discussion, two hours. Not open to students with credit for Life Sciences 3 or 4 or Microbiology 7. Historical and scientific study of genetic engineering in medicine, agriculture, and law, including examination of social, ethical, and legal issues raised by new technology. P/NP or letter grading.

70AL. Gene Discovery Laboratory. (5) Seminar, three hours; laboratory, five hours. Recommended requisite: course 70A. Laboratory work in genomics research and seminar discussion that apply experimentally concepts and techniques taught in course 70A. P/NP or letter grading.

70C. Culture, Ethnicity, Race, and Development: Multimedia and Multidisciplinary Approach. (5) Lecture, four hours; discussion, one hour. Study of cultural apprenticeship, including evolution of cultural learning, ontogeny of cultural learning, changes in cultural learning over history, and conflicts between forms and goals of cultural learning in a multicultural society. P/NP or letter grading.

71. Cross-Cultural Approaches to Media History and Culture. (5) Seminar, three hours. Examination of media, media history, and media culture from cross-cultural perspective, one that demands redefinition of media and understanding of art in cross-cultural context. P/NP or letter grading.

73. Elementary Particles in the Universe. (4) Lecture, two hours; discussion, 90 minutes. No special mathematical knowledge required. Examination of elementary particle physics, including status of its current study in laboratories around the world and its role in assessing the early evolution of the universe. P/NP or letter grading.

77. Writing Numbers. (5) Seminar, four hours. Not open to students with credit for introductory statistics. Whether it be to convince about lack of government support for arts, or global warming, or risks of living in high crime areas, statistical literacy promotes effective citizenship and social power. How to read narratives (in media, academic journals, etc.) supported by statistical data with critical eye, how to research and assess integrity of statistical evidence, and how to write persuasive articles supported by statistical data. P/NP or letter grading.

80. Genomics and Boundaries of Self. (5) Seminar, three hours. Study of impact that knowledge of entire human genome sequence has on our concepts of ourselves as individuals and our place in biological universe. P/NP or letter grading.

81. Eastern Christianity in Comparative Perspective: History, Doctrine, Culture. (5) Lecture, two hours; discussion, two hours. Exploration of philosophical and metaphysical beliefs of Eastern Christianity, comparing and contrasting Eastern churches to those that dominate in the West and examining how Eastern Orthodox outlook has developed within broader Judeo-Christian tradition. P/NP or letter grading.

82. Community and Labor Development from Ground Up. (4) Lecture, three hours; discussion, one hour. Introduction to practical applications of community development and outreach efforts in Los Angeles area, with projects from Community Outreach Partnership Center within School of Public Policy and Social Research. P/NP or letter grading.

83W. Politics and Rhetoric of Literature. (6) Seminar, four hours; writing laboratory, two hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Examination of relationship among politics, rhetoric, and literature in study of literature from classical times to the present, broadening into general discussions of development of political discourse in Western thought, particularly conflict between self and state, between ideology and the practical business of living. Satisfies Writing II requirement. Letter grading.

84. Conflicts between Languages. (5) Seminar, three hours. Introduction to potentially conflict-ridden language situations in three countries abroad and discussion of various aspects of minority languages in the U.S. P/NP or letter grading.

85. *Mestizaje* and Memory in Americas. (5) Seminar, three hours. Examination of texts from colonial Spanish America and 20th-century North America to investigate how authors in these different contexts have struggled with being between two cultures. P/NP or letter grading.

86. Psychology of Fear. (5) Seminar, three hours; fieldwork, one hour. Examination of phobias, including inquiry into how people are distressed by intense fear, examination of structures and processes of irrational fears, and discussion of courage and fear reduction strategies. P/NP or letter grading.

88. Understanding Imperialism in Africa: Slave Trade Antecedents and Colonial Legacies. (5) Seminar, three hours. Examination of nature of imperialism in Africa, its antecedents in African slave trade and in European exploration and missionary work, and its colonial and postcolonial legacy. P/NP or letter grading.

97. Issues in American Foreign Policy: Methodology of Assessment. (4) Lecture/debate, three hours; discussion, one hour. Exploration in debate format of wide range of views on contemporary foreign policy issues to train students how to discern the ideological origins of policy arguments. Examination of material in major foreign policy journals. P/NP or letter grading.

Upper Division Courses

101A. Student Research Forum. (2) Lecture, one hour; workshop, two hours. Corequisite: course 99. Designed to promote broad and deep understanding of university research, including plenary lectures on research and workshops on grant writing, Internet searches, research abstracts, and laws and regulations governing research. P/NP grading.

101B. UCLA Undergraduate Science Journal. (2) Seminar, two hours. For students on editorial board of annual *UCLA Undergraduate Science Journal*, including study of writing in the sciences and honing of editing and production skills. May be repeated once for credit. P/NP grading.

101C. UCLA Undergraduate Journal for Humanities and Social Sciences. (2) Seminar, two hours. For students on editorial board of annual *Westwind* journal of undergraduate research and writing, including study of writing in various disciplines and honing of editing and production skills. May be repeated once for credit. P/NP grading.

101D. Counseling Multicultural Communities. (2) Seminar, two hours. Study of issues of culture and identity in cross-cultural counseling, including development of working model. P/NP grading.

101E. Leading Undergraduate Seminars. (2) Seminar, two hours. Limited to students who have been accepted into Undergraduate Student Initiated Education (USIE) program. Learning and exploration of issues that are integral to developing seminars and development of skills to become effective student facilitators. Practical teaching strategies and techniques, as well as pedagogical, organizational, and technological issues confronted by new instructors. Discussion of key topics, followed by discussion of syllabi that students are developing for their seminars and conducting of micro-teaching presentations. Guest speakers expand on topics that arise from class discussions. P/NP grading.

101F. Integrity in Research. (2) Seminar, two hours. Limited to students in CARE, HHMI, MARC, and UC Leads programs. Discussion about integrity in research, current thinking in field, and important ethical issues that impact scientific investigation. P/NP grading.

101G. Graduate School Preparation. (2) Seminar, two hours. Limited to AAP students. Designed to help AAP students familiarize themselves with academic disciplines they would like to pursue in graduate school. Through course readings, guest speakers,

and interactive assignments, students learn more about their graduate school options and how to navigate application process. P/NP grading.

101I. Information and Research in Social and Behavioral Sciences. (2) Lecture, two hours; activity, two hours. Development of broader and deeper understanding of information access and retrieval within UCLA Library by utilizing subject specialists and subject-specific collections (print and electronic) within social and behavioral sciences disciplines. Course assists students who plan to be involved with major research projects or intend to undertake honors theses or comprehensive 199 projects. P/NP grading.

M102. Culture, Media, and Los Angeles. (6) (Same as Afro-American Studies M102 and Asian American Studies M160.) Lecture, four hours; screenings, two hours. Designed for juniors/seniors. Role of media in society and its influence on contemporary cultural environment, specifically in Los Angeles; issues of representation as they pertain to race, ethnicity, gender, and sexuality. P/NP or letter grading.

103. Scientific Knowledge, Industrial Growth, and Social Policy. (5) Lecture, three hours; laboratory, two hours. Examination, using nanotechnology, of both benefits and risks to economy and society when new technologies are in process of development. P/NP or letter grading.

104. Trojan War: Antiquity and Afterlife. (5) Seminar, three hours. Focus on Troy as locale for ancient and modern imagination in poetry, archaeology, and historical fantasy. P/NP or letter grading.

105. Racial and Ethnic Disparities in Healthcare. (5) Seminar, three hours. Examination of ways in which race and ethnicity impact delivery of healthcare in U.S. and discussion of policies and proposals to address disparities in healthcare and diversity in healthcare professionals. P/NP or letter grading.

M106. Imaginary Women. (4) (Same as Women's Studies M106.) Seminar, four hours. Designed for juniors/seniors. Study of four female cultural archetypes—absconding wife/mother, infanticide mother, intellectual woman, and warrior woman—as they appear in their classical and modern manifestations in European and American cultures. P/NP or letter grading.

107. Painful Birth: Rise of Modern Capitalism in Late Medieval Italy. (4) Seminar, three hours. Through medieval texts and representations of the human figure in art, examination of rise of merchant and banking class in late medieval Italy, focusing on ideological and economic issues rooted in contempt for commerce, prohibition of usury, ideal of the nobility, and choice between Earth and sky. P/NP or letter grading.

108. Transnationalism, Diasporas, and Homeland-Hostland Politics. (5) Seminar, three hours. Examination of debates about transnationalism, global migration, and diaspora communities in the 20th and 21st centuries, with focus on the U.S., including comparative perspective. P/NP or letter grading.

109. Language, Meaning, and the Making of Poetry. (4) Seminar, three hours; workshop, one hour. In words of the august professor, "Semiological warfare against the purveyors of semantic entropy." In context of and comparison with contemporary speech, study of history of philosophic and poetic discourse on language and its potentials, including social and political implications. P/NP or letter grading.

110. Marxist and Post-Marxist Approaches to Cultural Studies. (4) Seminar, four hours. Examination of Marxist and post-Marxist approaches to study of culture, including classic texts, theoretical and empirical works, and the Marxist roots of postmodernism. P/NP or letter grading.

111. Stress and Coping. (4) Seminar, four hours. Examination of research and theory on stress and coping, with emphasis on physical and mental consequences of stress and moderators of both social support and personality in coping strategies. P/NP or letter grading.

M112. Inner and Outer Worlds of Children: Social Policies. (4) (Same as Education M112.) Seminar, four hours. Practices and analysis of social policies impacting on children. Topics include assessment, so-

cial justice and geographical space, temporal orientation, and classical theories of adolescent development. Letter grading.

113. Work, Gender, and Race in America. (5) Seminar, three hours; fieldwork, two hours. Exploration of how shifts from manufacturing to service work and from local to global markets have differentially affected nature of work in the U.S. for workers assessed by gender, race, ethnicity, and economic status. P/NP or letter grading.

114. Architecture from Los Angeles: Work of Frank Gehry, Thom Mayne, and Greg Lynn. (5) Seminar, three hours. Within last 30 years, body of architectural work originating in Los Angeles but reaching world both in material construction and aesthetic influence has emerged. Study of works of three seminal architects—Frank Gehry, Thom Mayne, and Greg Lynn. Site visits and hands-on practice in how to read architectural plans and how to use computers and modeling in architectural study and design. P/NP or letter grading.

M116. Art Alive: Art and Improvisation in Museums. (4) (Same as Theater M187.) Seminar, four hours. Offered in collaboration with Los Angeles County Museum of Art (LACMA). Interpretation of art in collection through acting, dialogues, movement, and music. Research into history and art history and production of creative performance piece required. P/NP or letter grading.

117. Resistance to Evil: Organized Resistance to Nazis in Occupied Europe. (4) Seminar, three hours. Resistance is not a moral or philosophical issue, but a sociohistorical one. What makes resistance possible are specific historical circumstances and social relations that enable ordinary men and women to oppose their oppressors. Examination of this premise through analysis of organized resistance to Nazi occupation in Europe. P/NP or letter grading.

117L. Resistance to Evil: Organized Resistance to Nazis in Occupied Europe. (2) Seminar, two hours. Corequisite: course 117. Optional seminar with reading of texts in Dutch, Flemish, and some French selected from works that relate directly to material covered in course 117. P/NP or letter grading.

M118. Roots of Patriarchy: Ancient Goddesses and Heroines. (4) (Same as Women's Studies M128.) Lecture, three hours. Examination of ancient goddesses and heroines—European, Neolithic, Near Eastern, Celtic, Scandinavian, Balto-Slavic, Indo-Iranian, and Greco-Roman—using translations of ancient texts, archaeological evidence, and feminist methodology in order to discover implications of ancient patriarchy on modern society. P/NP or letter grading.

M119. Nuclear Weapons: Critical Decisions. (4) (Same as Environment M165, Public Policy M116, and Political Science M139B.) Lecture, three hours. Examination of critical decisions regarding nuclear weapons, starting with President Roosevelt's decision to build atomic bomb and ending with current policies on containing nuclear proliferation and on avoiding nuclear catastrophe. Letter grading.

M120. Art and Performance: Interdisciplinary Approach to Collections of Getty Center. (4) (Same as Theater M109.) Lecture, four hours; discussion, one hour. Drawing from objects in five major collections at Getty Museum, focus on five parallel historical periods in which political, social, and aesthetic philosophy of the age is examined in musical and dramatic performance. Letter grading.

121. Psychoanalysis before Freud, and a Little After. (5) Lecture, three hours; discussion, one hour. Examination of different ways human beings have developed conceptions of themselves through history from early civilizations through Middle Ages, Renaissance, Reformation, scientific revolution, Enlightenment, origins of modern world, Freud's *fin de siècle* Vienna, and post-Freudian visions; investigation of various interactions of these different conceptions in present day. P/NP or letter grading.

122. Violence Against Women in Cross-Cultural Perspectives. (4) Seminar, three hours. Exploration of sources of violent acts against women in different societies. Topics include wife beating, female sexual slavery, female infanticide, dowry deaths, female genital "circumcision," rape, and emerging global human rights responses to these issues. P/NP or letter grading.

123. War and Peace in Africa. (4) Seminar, four hours. Investigation into main causes and forms of warfare on African continent, including relationship between internal war and transborder conflict, historic ethnic antagonism, competition for control of natural resources, and hostilities precipitated by militarism. P/NP or letter grading.

124. Midwives, Mothers, and Medicine: Perspectives on History of Childbirth. (4) Seminar, three hours. Using examples from history and anthropology, examination of variety of practices associated with childbirth over time and across cultures, addressing such themes as shifting relations among birthing women, midwives, and medical men and cultural meanings of birth. P/NP or letter grading.

126. Making Citizens/Making Societies: Political Cultivation in Cross-Cultural Perspective. (4) Seminar, three hours. Examination of how society takes active concern in making sure that certain politically relevant dispositions, sensitivities, capacities, and skills are nourished in population at large, including models of both aristocratic and democratic cultivation and their political implications. P/NP or letter grading.

127. Citizenship, Leadership, and Service. (4) Seminar, three hours; fieldwork, three hours. Interactive participatory study of interactions between citizenship, leadership, and service, including both theoretical work in classroom and practical work in service organizations in the field. P/NP or letter grading.

M128SL. Latinos, Linguistics, and Literacy. (5) (Formerly numbered M128.) (Same as Applied Linguistics M172SL, Chicana and Chicano Studies M170SL, and Spanish M172SL.) Seminar, four hours; field project, four to six hours. Recommended requisite: Spanish 100A. In-depth study of various topics related to literacy, including different definitions of literacy, programs for adult preliterates, literacy and gender, approaches to literacy (whole language, phonics, Freire's liberation pedagogy), history of writing systems, phoneme as basis for alphabetic writing, and national literacy campaigns. Required field project involving Spanish-speaking adults in adult literacy programs. P/NP or letter grading.

M129. Cultural Construction of Gender and Sexuality: Homosexualities. (4) (Same as Anthropology M134 and Lesbian, Gay, Bisexual, and Transgender Studies M134.) Seminar, three hours. Comparative analysis of role of environment, history, and culture in structuring of patterns of same-sex erotic behavior in Asia, Africa, Middle East, Pacific, Caribbean, and aboriginal America. P/NP or letter grading.

130. How Cold War Was Played. (4) Lecture/discussion, four hours. Examination of what prompted the Cold War, why it lasted so long, what its impact was on political and socioeconomic systems of two main protagonists, and what its legacy has become. P/NP or letter grading.

131. Beating Time through Time: Language, Verse, and Culture. (5) Seminar, three hours. Exploration of links among language change, demographic and cultural change, and changing modes of poetic composition in English from 10th-century alliterative tradition to contemporary rap lyrics. P/NP or letter grading.

132. Bible as Political Theory. (4) Seminar, four hours. The Bible treated as political text, addressing prepolitical condition, formation of political community, state, survival without a state, and messianism, with focus both on institutions and on intellectual history. P/NP or letter grading.

134. Quest for Identity and the American Dream. (5) Seminar, three hours. Exploration of concepts of equality, identity, individuality, and authenticity in American society through literary and legal texts and selected theory and films. P/NP or letter grading.

M135. Narrative in Mass Communication. (6) (Same as Communication Studies M135.) Seminar, four hours. Examination of narrative as primary function of mass media, beginning with social, psychological, cultural, and rhetorical functions of storytelling and basic elements of narrative, then applying these to study of film, television, and print media. P/NP or letter grading.

137. Political Satire: Offensive Art. (5) Seminar, three hours. Study of political satire in several societies and variety of genres, including review of sociopolitical conditions that act to foster or constrain satire. P/NP or letter grading.

138. Disease and Human Condition. (5) Seminar, four hours. Exploration of scientific characteristics and historical manifestations of group of diseases that have shaped civilization; discussion of how historical manifestations of each disease are embedded in social and economic conditions of its time. P/NP or letter grading.

139. African Americans and Africa in Perspective. (5) Seminar, four hours. Study of saga of how African Americans have struggled to reattach their identity to Africa and Africans in both historical and contemporary perspectives. P/NP or letter grading.

140. Dominants and Subordinates in Social Psychology of Privilege and Oppression in Public Education. (6) Lecture, four hours; discussion, one hour; tutoring, three hours. Study of social arrangements and temporary inequalities in contemporary American public school, showing how such entrenched inequalities tend to become permanent. Field component included. P/NP or letter grading.

141. Biology and Medicine in Postgenomic Era. (5) Seminar, four hours. Requisite: Life Sciences 3. Discussion of human genomic project, comparative and environmental genomics, structural and functional genomics, transcriptomics, proteomics, pharmacogenomics, and metabolomics. P/NP or letter grading.

142. Madness in the Enlightenment: Care and Cure of Mental Illness. (5) Seminar, four hours. Study of physicians and reformers of Enlightenment who treated mentally ill, examined in context of social, intellectual, and cultural history of the time. P/NP or letter grading.

M143. Latino Immigration History and Politics. (4) (Same as Chicana and Chicano Studies M124.) Lecture, four hours. Overview of immigration in 20th century, examining social, political, and economic contexts out of which different waves of Latin American immigration to U.S. has occurred. Letter grading.

144. Stigma: Anthropology of Dangerous Other. (4) Seminar, three hours. In cross-cultural perspective, analysis of apparently common causes and consequences of diverse forms of social inequality in which culturally ascribed stigma is common factor. P/NP or letter grading.

M145. Politics of Crisis: Migration, Identity, and Religion. (4) (Same as Chicana and Chicano Studies M126.) Lecture, three hours. Examination of individual and collective religious response of Latin Americans and Latinas/Latinos in U.S. to dislocations, displacements, and fragmentation produced by conquest, colonization, underdevelopment, globalization, and migration. Letter grading.

147. Feminism Around the World: Past and Present. (5) Seminar, three hours. Historical and global perspective on variety of feminist movements in the world, including their similarities and differences. P/NP or letter grading.

M148. Simulating Society: Exploring Artificial Communities. (5) (Same as Sociology M118.) Seminar, three hours; computer laboratory, one hour. Examination of social behavior through computer simulations of behavior in artificial communities. P/NP or letter grading.

149. Culture: What Makes It Work. (5) Seminar, four hours. Examination of some basic questions that arise in study of what we mean by culture, including new theory and methods, using multiagent modeling, that allows us to do quasi-experimental research into nature of culture. P/NP or letter grading.

M150. Formal Modeling and Simulations in Social Sciences. (4) (Same as Anthropology M186 and Human Complex Systems M100.) Lecture, three hours. Exploration of different approaches to modeling empirical phenomena of concern to social sciences. Topics include utility models, learning models, decision models, group competition models, and evolutionary models. Use of multiagent computer simulations and group exercises to explore emergent behaviors among individuals interacting according to models for behavior. Discussion of advantages and drawbacks of more traditional mathematical modeling. Review of alternative forms of formal representations of hypothesized processes and issues related to verification of simulations. P/NP or letter grading.

151. American Jews and Israel in Mutual Perspective. (4) Seminar, three hours. Examination of relationships between Israel and Jews in the U.S., with emphasis on locating the two communities in Jewish history and political impact of this relationship. Offered mutually with parallel course at Tel Aviv University, including shared bulletin board and chat room. P/NP or letter grading.

M152. Past Societies and Their Lessons for Our Own Future. (5) (Same as Anthropology M158Q and Geography M153.) Lecture, two hours; discussion, two hours. Examination of modern and past tribal and band societies (Amazonian Indians, Kalahari San, New Guineans, and others) that met varying fates, as background to examination of how modern state societies are coping or failing to cope with similar issues. P/NP or letter grading.

153. International Flash Points. (5) Seminar, three hours. Debate-style seminar concentrating on explosive confrontation points in current international affairs, including North and South Korea, India and Pakistan, Israel and Palestinians, Iraq, Colombia, and Congo and Rwanda. P/NP or letter grading.

M154. Interpreting Performance: Examination of Social, Historical, and Cultural Models for Performing Arts. (5) (Same as Theater M112.) Lecture, two hours; discussion, two hours. Examination of nature of performance in theory and practice and of social, historical, and cultural contexts in which performance traditions have evolved. Attendance at approximately five designated performances/events required. P/NP or letter grading.

155. U.S. and World Post-9/11. (5) Lecture, two hours; discussion, two hours; tutorial, 90 minutes every other week. Survey of major questions confronting American foreign policy in period since September 11, 2001, in course organized in conjunction with series of public lectures on this topic. P/NP or letter grading.

156. Consciousness and Brain. (5) Seminar, three hours. Examination of philosophical and neuroscientific aspects of how brain produces conscious experience, including consideration of whether consciousness exists, what is meant by intentional experience, and role of language and self in consciousness. P/NP or letter grading.

M157. International Relations of Middle East. (4) (Same as Political Science M132B.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Role of great powers in Middle East, with emphasis on American, Soviet, and West European policies since 1945. P/NP or letter grading.

158. Justice and Moral Responsibility in Literature. (5) Seminar, three hours. Discussion of literature (drama and fiction) addressing themes of law, justice, government, and moral responsibility in public context. P/NP or letter grading.

164. Pushkin and Russian National Identity. (5) Seminar, three hours. Examination of history and mythology surrounding African ancestry of Russian poet Alexander Pushkin and their effects on national identity. P/NP or letter grading.

165. Women and Literature in Southeastern Europe. (5) Seminar, three hours. Examination, through prism of literature, of changing role of women in southeastern European countries (Albania, Bosnia-Herzegovina, Bulgaria, Croatia, Greece, Macedonia, Montenegro, Romania, Russia, Serbia, Slovenia, Tur-

key) during last 60 years, with emphasis on economic, cultural, and political variables affecting women's roles. P/NP or letter grading.

166. Stories of Cultural Distance and Imposed Assimilation. (5) Seminar, four hours. Study of how fiction, memoir, and film have represented involuntary cross-cultural assimilation as seen from perspective of intimate others, usually family members, coming to terms with their own and their relatives' cultural identity. P/NP or letter grading.

167. Politics of Health from 1750 to 1900: World Health and Public Health, Physical and Mental Health. (5) Seminar, three hours. Examination of health in latter half of 18th century and in 19th century. Research topics may include impact of diseases and controversy over inoculation, professional development of physicians, surgeons, pharmacists, midwives, and nurses, evolution of hospital, rise of specialization in healthcare, and intervention of medical scientists or government in public health. P/NP or letter grading.

168. Mediterranean World since Roman Empire. (5) Seminar, three hours. Introduction to study of Mediterranean world over long period from fall of Roman Empire to present day, including discussions of debates on ecological change, social particularity, role of commerce and trade in historical change, and nature of cross-cultural exchange. P/NP or letter grading.

169. Imposture and National Identity. (5) Seminar, three hours. Cross-cultural approach to study of imposture (assumption of false identity) as window through which to examine cultural modernity and national identity. Study of literature, history, and film from Australia, United Kingdom, the U.S., Near East, and South Asia as way of trying to define both hypocrisies and creativity of imposture. P/NP or letter grading.

170. Venice Imagined. (5) Seminar, three hours. Study of literature and visual arts associated with city of Venice, Italy, concentrating first on period of early modern Venice as flourishing republic and then on its long decline, of special fascination to Romantic, modern, and contemporary authors. P/NP or letter grading.

171. Rationality and Emotions. (5) Seminar, three hours. Historical study of way in which philosophers, social theorists, and cognitive scientists have characterized relationship between rationality and emotions, culminating in emerging consensus that emotions can positively influence rational decision making. Readings range from philosophy of ancient Greeks to writings of contemporary neuroscientists. P/NP or letter grading.

172. French Thinkers of Society. (5) Seminar, four hours. In-depth study of distinguishing perspectives of French theorists who wrote on society and its impact on individuals. Theorists include Pascal, Rousseau, Marcel Mauss, and Emile Durkheim from early modern period, contemporary thinkers such as Michel Foucault, Michel de Certeau, and Pierre Bourdieu, and two postmodern theorists, Guy Debord and Jean Baudrillard. P/NP or letter grading.

173. Lincoln and American Political Tradition. (5) Seminar, three hours. Examination of nuances of Lincoln's ideas and complexity of his political positions in his writing and early works, including study of his prose and method of reasoning in all his works. P/NP or letter grading.

173A. Liberty, Government, and Society in European Thought. (5) Seminar, three hours. Corequisite: course 173. Complements course 173; students encouraged to take both courses concurrently. Examination of five great works of European thought from 17th through 19th century, including works of John Locke, Montesquieu, Adam Smith, and John Stuart Mill, with emphasis on legal, social, and moral preconditions of liberty. P/NP or letter grading.

174. Future Impact of Nano in New Technologies. (5) Seminar, four hours. Examination, for general audience, of science behind nanotechnology and way in which nano can potentially influence medical care, environment, energy issues, military, government, and economics. Demonstration of how nano, like current technology, cannot be separated from ethical, cultural, political, and social issues. P/NP or letter grading.

175. Terrorism, Counterterrorism, and Weapons of Mass Destruction: Practical Approach. (5) Seminar, three hours. Terrorism, its origins, and ways of addressing terrorism at local, national, and global levels. Guest speakers from variety of UCLA departments and from Los Angeles. P/NP or letter grading.

176A. Context of Arab World: Cairo and Alexandria. (4) Seminar, four hours; fieldwork, eight hours. Enforced corequisite: course 176B. Introduction to some of most important cultural, historical, and political currents in contemporary Arab world, with special focus on Cairo and Alexandria. Offered in summer only. P/NP or letter grading.

176B. Reading Arab World: Cairo and Alexandria. (4) Seminar, four hours; fieldwork, eight hours. Enforced corequisite: course 176A. Introduction to some of most salient literature in contemporary Arab world, with focus on Cairo and Alexandria. Offered in summer only. P/NP or letter grading.

177. Biotechnology and Art. (5) Seminar, six hours. Bioartists use cells, DNA molecules, proteins, and living tissues to bring to life ethical, social, and aesthetic issues of sciences. Study of how bioart blurs distinctions between science and art through combination of artistic and scientific processes, creating wide public debate. Exploration of history of biotechnology as well as social implications of this science. P/NP or letter grading.

178. Secret Coups, Imperial Wars, and American Democracy since World War II. (5) Seminar, three hours. Study of U.S. involvement, both covert and overt, in expeditionary wars since World War II, including involvement in Vietnam, Korea, Cuba, Iran, Guatemala, Nicaragua, and Chile, and implication of these actions for vitality of American democracy. P/NP or letter grading.

M179. Critical Vision: History of Art as Social and Political Commentary. (5) (Formerly numbered 29.) (Same as Communication Studies M169.) Seminar, three hours. Study of tradition of visual arts (painting, graphic art, photography, sculpture) as vehicles for social and political commentary. P/NP or letter grading.

M180. Structure, Patterns, and Polyhedra. (5) (Same as Chemistry M117.) Lecture, four hours; activity, two hours. Exploration of structures and their geometric underpinnings, with examples and applications from architecture (space frames, domes), biology (enzyme complexes, viruses), chemistry (symmetry, molecular cages), design (tiling), engineering (space filling), and physics (crystal structures) to effect working knowledge of symmetry, two-dimensional patterns, and three-dimensional solids. P/NP or letter grading.

193A. Journal Club Seminars: McNair Research Scholars. (2) Seminar, two hours; discussion, two hours. Limited to McNair research scholars. Study of key research journals and important research articles in humanities and social sciences. Weekly research reports and presentations by McNair students. Presentations by program faculty members and other leading researchers. May be repeated for credit. P/NP grading.

193B. Journal Club Seminars: Arts and Humanities Summer Research Program. (2) Seminar, one hour; discussion, one hour. Limited to students selected for Humanities Summer Research Program. Study of humanities research journals and monographs. Weekly student research reports and presentations by humanities faculty members. May be repeated for credit. P/NP grading.

193C. Journal Club Seminars: Mellon Mays Undergraduate Research Scholars. (2) Seminar, one hour; discussion, one hour. Limited to Mellon Mays undergraduate fellows. Study of key research journals and important research articles in arts, humanities, and social sciences. Weekly research reports and presentations by Mellon Mays students. Presentations by program faculty members and other leading researchers. P/NP grading.

199. Directed Honors Studies. (4) Tutorial, two hours. Preparation: minimum of 4 units completed in Honors Collegium with grade of B or better, overall UCLA grade-point average of 3.0 or better. Special re-

search/writing tutorial with director of one Honors Collegium course to pursue in greater depth significant topics from one collegium course. May be repeated for credit. P/NP or letter grading.

HUMAN COMPLEX SYSTEMS

*Interdisciplinary Minor
College of Letters and Science*

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Dwight W. Read, Ph.D., *Chair*

Faculty Administrative Committee

Susanne Lohmann, Ph.D. (*Political Science, Public Policy*)

William McKelvey, Ph.D. (*Management*)

Dwight W. Read, Ph.D. (*Anthropology*)

Francis F. Steen, Ph.D. (*Communication Studies*)

Scope and Objectives

Human social systems are complex because humans conceptualize, communicate, and construct. Human social systems are shaped not only by factors extrinsic to the individuals making up the social systems, but also by the humans embedded within them. Humans are agents who analyze, reflect on, affect, shape, modify, and construct the social systems of which they are a part.

Students in the Human Complex Systems minor learn ways of thinking that help them make sense of and move effectively in today's world—a world that is complex, information-rich, and prone to fast and furious change. They develop analytical skills and learn methodological tools that are relevant for the workplace in the emerging techno-economy. Students who seek to enter graduate school are well prepared by virtue of participating in some of the most exciting and novel research programs linking the frontiers of the social sciences with computer science, life sciences, humanities, management, public policy, and media arts.

Undergraduate Study

Human Complex Systems Minor

To enter the Human Complex Systems minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Courses (12 units minimum): Three courses, including one from Mathematics 2, Statistics 10, 11, 12, 13, or 14 and two from Anthropology 7, 8, 9, 33, Economics 1, 2, Geography 3, 4, any lower division history course, Political Science 10, 20, 30, 50, Sociology 1, 10, 24 (courses may be from the same department or from different departments).

Required Upper Division Courses (20 units minimum): Five courses selected from the following: (1) two core courses from Anthropology 131, Communication Studies 154, Human Complex Systems M130 or Management M118A, Political Science 146G, Sociology 111, (2) two method courses (Human Complex Systems M100/100L and 110), and (3) one elective course from Anthropology 131 (unless taken as part of the core), M186, 186P, Communication Studies 154 (unless taken as part of the core), Geography 142, 148, Human Complex Systems 120, M130 or Management M118A (unless taken as part of the core), Political Science M115A, M142D, 146G (unless taken as part of the core), 164, Public Policy 102, C119, Sociology 111 (unless taken as part of the core), or M118; other courses may be applied by petition, and students may petition to apply Human Complex Systems 197 at the same time the contract is signed.

No more than two courses (8 to 10 units) may be applied toward both this minor and a major or minor in another department or program. Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Human Complex Systems

Lower Division Courses

1Q. Emerging Issues in Complex Systems Science. (2) Lecture, two and one half hours. Presentation of current faculty work in complexity science, particularly in human social and organizational dynamics, but also including aspects of arts, humanities, and natural sciences. Introduction to readings relevant to human complex systems and to current faculty members and researchers who teach and advise in program. P/NP or letter grading.

M10A. Introduction to Complex Systems Science. (5) (Formerly numbered 10A.) (Same as Engineering M10A.) Lecture, four hours. How macroscopic patterns emerge dynamically from local interactions of large number of interdependent (often heterogeneous) entities, without global design or central control. Such emergent order, whose explanation cannot be reduced to explanations at level of individual entities, is ubiquitous in biology and human social collectives, but also exists in certain physical processes such as earthquakes and some chemical reactions. Complexity also deals with how such systems undergo sudden changes, including catastrophic breakdowns, in absence of external force or central influence. Key aspect of biological and social collectives is their nature as complex adaptive systems, where individuals and groups adjust their behavior to external conditions. In biological and social systems, complexity science goes beyond traditional mathematics and statistics in its use of multiagent computational models that better capture these complex, adaptive, and self-organizing phenomena. Letter grading.

Upper Division Courses

M100. Formal Modeling and Simulations in Social Sciences. (4) (Same as Anthropology M186 and Honors Collegium M150.) Lecture, three hours. Exploration of different approaches to modeling empirical phenomena of concern to social sciences. Topics include utility models, learning models, decision models, group competition models, and evolutionary models. Use of multiagent computer simulations and group exercises to explore emergent behaviors

among individuals interacting according to models for behavior. Discussion of advantages and drawbacks of more traditional mathematical modeling. Review of alternative forms of formal representations of hypothesized processes and issues related to verification of simulations. P/NP or letter grading.

100L. Modeling and Simulations Laboratory. (1) Laboratory, one hour. Designed for Human Complex Systems minor students. Discussion of observational techniques and engagement in live group simulations as experiential learning, with focus on how coherent behavior and complexity emerge from interactions between individual agents, such as formation of social and political movements. First-hand experience in observing interactional patterns and system dynamics, such as how individuals come to play leadership roles, how alliances and pairing occur in groups, and how culture (lasting patterns of interaction and belief) form. Letter grading.

110. Artificial Culture: Experiments in Synthetic Anthropology. (5) Lecture, two hours; laboratory, four hours. Prior programming experience not required. Hands-on introduction to artificial culture—philosophy and practice of constructing highly interactive computer simulations of human social worlds. Informed and critical look at revolutionary new sciences of complexity: multiple agency, simultaneous causation and evolutionary emergence embodied in computational description, and understanding and explanation of human complex systems. Students design their own populations of cultural agents, create social and physical environments in which they live, and study consequences of counterfactual what-if scenarios. May be repeated for credit. Letter grading.

120. Artificial Life, Culture, and Evolution. (5) Lecture, two hours; laboratory, four hours. Prior programming experience not required. Hands-on introduction to artificial life and evolutionary computation as they contribute to philosophy and practice of artificial culture, description, understanding, and explanation of human complex systems through computer simulations. Informed and critical look at evolution, origin, and emergence of physical, biological, and cultural processes from perspective of revolutionary new sciences of complexity. Students design, modify, and experiment with interactive simulations featuring cellular automata, algorithmic patterning, and evolutionary and genetic programming. May be repeated for credit. Letter grading.

M130. Complexity Science for Social Systems. (4) (Same as Management M118A.) Lecture, four hours. Limited to juniors/seniors. Introduction to (1) complexity science as applied to social behavior and (2) agent-based computational modeling. Use of complexity science to bridge old and new conceptions of social science. Newtonian science, neoclassical economics, and old-style approaches to social science all build on assumptions that all basic agents comprising phenomena (atomic particles, atoms, molecules, organisms, people, groups, firms) are homogeneous and go forward in time under equilibrium conditions interspersed with occasional disequilibrium periods. Letter grading.

M140D. Diversity, Disagreement, and Democracy: Can't We All Just Get Along? (4) (Same as Political Science M115D.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Can't we all just get along? Study of diversity, disagreement, and democracy. Diversity covers individual differences, cultural differences, and human universals; groupism, factionalism, and identity politics; multiculturalism and one-world ethics. Disagreement includes moral, ideological, and party-political disagreement; resolvable and irresolvable kinds of disagreement; groupthink and group polarization; herding and information cascades. Democracy stands for political mechanisms of information aggregation; political mechanisms to resolve differences, or to keep peace among people with irresolvable differences; emergence and spread of democracy, liberty, and rule of law. Letter grading.

M145. Ethics and Governance. (4) (Same as Political Science M115A and Public Policy M122.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Study of applied ethics and governance, taking case-based approach, mixing normative and positive perspectives. Is action X morally right or wrong? How do people reason about whether action X is morally right or wrong? How do governance structures influence how people reason about whether action X is morally right or wrong? How can we design governance structures that encourage people to act ethically, contribute to public goods, and lead productive and fulfilled lives? P/NP or letter grading.

M193P. Journal Club Seminars: Human Complex Systems. (1) (Same as Anthropology M193P) Seminar, one hour. Limited to undergraduate students. Discussion of current readings in discipline. May be linked with speaker series. May be repeated for credit with topic change. P/NP grading.

197. Individual Studies in Human Complex Systems. (2 to 4) Tutorial, to be arranged. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned readings and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

199. Directed Research in Human Complex Systems. (2 to 4) Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

HUMAN GENETICS

David Geffen School of Medicine

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Kenneth L. Lange, Ph.D., *Chair*

Professors

Rita M. Cantor, Ph.D., *in Residence*
Stephen Cederbaum, M.D., *in Residence*
Daniel H. Cohn, Ph.D., *in Residence*
Richard A. Gatti, M.D., *in Residence (Rebecca Smith Endowed Professor of A-T Research)*
Daniel H. Geschwind, M.D., Ph.D., *in Residence (Gordon and Virginia MacDonald Distinguished Professor of Human Genetics)*
Wayne W. Grody, M.D., Ph.D.
Stefan Horvath, Ph.D.
James A. Lake, Ph.D.
Kenneth L. Lange, Ph.D. (*Maxine and Eugene Rosenfeld Endowed Professor of Computational Genetics*)
Aldons J. Lusis, Ph.D.
Edward R.B. McCabe, M.D., Ph.D. (*Mattel Executive Endowed Professor of Pediatrics*)
Stanley F. Nelson, M.D., *in Residence*
Karen Reue, Ph.D.
David L. Rimoim, M.D., Ph.D.
Jerome Rotter, M.D., Ph.D., *in Residence*
Janet S. Sinsheimer, Ph.D.
Marc A. Suchard, M.D., Ph.D.
Eric J. N. Vilain, M.D., Ph.D.
Stephen G. Young, M.D.

Associate Professors

Esteban C. Dell'Angelica, Ph.D.
Katrina M. Dipple, M.D., Ph.D.
Eleazar Eskin, Ph.D.

Guoping Fan, Ph.D.
Deborah Krakow, M.D., in *Residence*
Paivi E. Pajukanta, M.D., Ph.D.
Christina Palmer, Ph.D., in *Residence*

Assistant Professor

Julian A. Martinez, M.D., Ph.D.

Adjunct Professors

Linda L. McCabe, Ph.D.
Eric M. Sobel, Ph.D.

Adjunct Associate Professor

Jeanette C. Papp, Ph.D.

Adjunct Assistant Professor

Christina Jamieson, Ph.D.

Scope and Objectives

The graduate Human Genetics Program prepares students for careers as independent laboratory researchers with a firm grasp of the developments in biological and medical research. The rapidly evolving field of human genetics now incorporates genetic, biochemical, cell biological, and developmental studies of both humans and model organisms to tackle biomedical problems important for human health and disease. Areas of study include both Mendelian and non-Mendelian hereditary diseases, genomics and mapping, bioinformatics, developmental biology, neurogenetics, sex determination, cytogenetics, human malformation, and chromatin structure and function. Laboratory research is emphasized. Conceptual approaches to medically related biological problems are employed, frequently with the aid of automation and advanced imaging techniques, toward the goal of disease prevention, control, and eradication methods such as gene therapies. Coursework acquaints students with the most current literature and trains students in critical thinking, experimental design, and the ability to anticipate future developments.

Graduate study leading to a Ph.D. degree is emphasized. Under special circumstances, M.S. candidates are considered after consultation with faculty members and the chair.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Human Genetics offers Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Human Genetics. An M.D./Ph.D. program is also offered.

Human Genetics

Upper Division Courses

C120. Ethical Issues in Human Genetics. (2) Seminar, two hours. Topics include consent for genetic research, privacy of genetic information, genetic discrimination, misattribution of parentage, DNA data-

bases, presymptomatic genetic testing, newborn screening, genetic testing of children, preimplantation diagnosis, prenatal diagnosis, manipulation of embryos and cloning, gene therapy, and forensic use of genetic information. Concurrently scheduled with course C220. P/NP or letter grading.

CM122. Mouse Molecular Genetics. (2) (Same as Microbiology CM122.) Lecture, two hours. Requisite: Life Sciences 4. Emphasis on use of mouse genetic approach to studying fundamental biological questions. Topics include mouse genome and functional genomics, mutagenesis screening and cloning of disease genes, transgenesis and its application in developmental biology, stem cell biology, neurobiology, and modeling human genetic disorders. Reading materials include original papers and reviews. Concurrently scheduled with course CM222. P/NP or letter grading.

CM124. Computational Genetics. (4) (Same as Computer Science CM124.) Lecture, three hours; discussion, one hour; outside study, eight hours. Preparation: one statistics course and familiarity with any programming language. Designed for undergraduate and graduate engineering students, as well as students from biological sciences and medical school. Introduction to current quantitative understanding of human genetics and computational interdisciplinary research in genetics. Topics include introduction to genetics, human population history, linkage analysis, association analysis, association study design, isolated and admixed populations, population substructure, human structural variation, model organisms, and genotyping technologies. Computational techniques include those from statistics and computer science. Concurrently scheduled with course CM224. Letter grading.

C144. Genomic Technology. (4) Lecture, three hours; discussion, one hour. Requisite: Life Sciences 4. Survey of key technologies that have led to successful application of genomics to biology, with focus on theory behind specific genome-wide technologies and their current applications. Concurrently scheduled with course C244. P/NP or letter grading.

CM156. Human Genetics. (4) (Same as Microbiology CM156 and Molecular, Cell, and Developmental Biology CM156.) Lecture, three hours; discussion, two hours. Requisites: Life Sciences 3, 4. Application of genetic principles in human populations, with emphasis on cytogenetics, biochemical genetics, population genetics, and family studies. Lectures and readings in the literature, with focus on current questions in the fields of medical and human genetics and methodologies appropriate to answer such questions. Concurrently scheduled with course CM256. Letter grading.

199. Special Studies in Human Genetics. (2 to 8) Tutorial, to be arranged. Students select instructor among eligible research faculty and carry out independent research project under instructor supervision. P/NP or letter grading.

Graduate Courses

M203. Stochastic Models in Biology. (4) (Same as Biomathematics M203.) Lecture, four hours. Requisite: Mathematics 170A or equivalent experience in probability. Mathematical description of biological relationships, with particular attention to areas where conditions for deterministic models are inadequate. Examples of stochastic models from genetics, physiology, ecology, and variety of other biological and medical disciplines. S/U or letter grading.

M207A. Theoretical Genetic Modeling. (4) (Same as Biomathematics M207A and Biostatistics M272.) Lecture, three hours; discussion, one hour. Requisites: Mathematics 115A, 131A, Statistics 100B. Mathematical models in statistical genetics. Topics include population genetics, genetic epidemiology, gene mapping, design of genetics experiments, DNA sequence analysis, and molecular phylogeny. S/U or letter grading.

M207B. Applied Genetic Modeling. (4) (Same as Biomathematics M207B and Biostatistics M237.) Lecture, three hours; laboratory, one hour. Requisites: Biostatistics 110A, 110B. Methods of computer-oriented human genetic analysis. Topics include statisti-

cal methodology underlying genetic analysis of both quantitative and qualitative complex traits. Laboratory for hands-on computer analysis of genetic data; laboratory reports required. Course complements M207A; students may take either and are encouraged to take both. S/U or letter grading.

210. Topics in Genomics. (2) Seminar, two hours. Survey of current biological theory and technology used in genomic research. Topics include genomic technologies, functional genomics, proteomics, statistical genetics, bioinformatics, and ethical issues in human genetics. S/U grading.

M211. Mathematical and Statistical Phylogenetics. (4) (Same as Biomathematics M211 and Biostatistics M239.) Lecture, three hours; laboratory, one hour. Requisites: Biostatistics 110A, 110B, Mathematics 170A. Theoretical models in molecular evolution, with focus on phylogenetic techniques. Topics include evolutionary tree reconstruction methods, studies of viral evolution, phylogeography, and coalescent approaches. Examples from evolutionary biology and medicine. Laboratory for hands-on computer analysis of sequence data. S/U or letter grading.

C220. Ethical Issues in Human Genetics. (2) (Formerly numbered 220.) Seminar, two hours. Topics include consent for genetic research, privacy of genetic information, genetic discrimination, misattribution of parentage, DNA databases, presymptomatic genetic testing, newborn screening, genetic testing of children, preimplantation diagnosis, prenatal diagnosis, manipulation of embryos and cloning, gene therapy, and forensic use of genetic information. Concurrently scheduled with course C120. S/U or letter grading.

CM222. Mouse Molecular Genetics. (2) (Same as Microbiology CM222.) Lecture, two hours. Requisite: Life Sciences 4. Emphasis on use of mouse genetic approach to studying fundamental biological questions. Topics include mouse genome and functional genomics, mutagenesis screening and cloning of disease genes, transgenesis and its application in developmental biology, stem cell biology, neurobiology, and modeling human genetic disorders. Reading materials include original papers and reviews. Concurrently scheduled with course CM122. S/U or letter grading.

CM224. Computational Genetics. (4) (Same as Computer Science CM224.) Lecture, three hours; discussion, one hour; outside study, eight hours. Preparation: one statistics course and familiarity with any programming language. Designed for undergraduate and graduate engineering students, as well as students from biological sciences and medical school. Introduction to current quantitative understanding of human genetics and computational interdisciplinary research in genetics. Topics include introduction to genetics, human population history, linkage analysis, association analysis, association study design, isolated and admixed populations, population substructure, human structural variation, model organisms, and genotyping technologies. Computational techniques include those from statistics and computer science. Concurrently scheduled with course CM124. Letter grading.

M229S. Seminar: Current Topics in Bioinformatics. (4) (Same as Computer Science M229S.) Seminar, four hours; outside study, eight hours. Designed for graduate engineering students, as well as students from biological sciences and medical school. Introduction to current topics in bioinformatics, genomics, and computational genetics and preparation for computational interdisciplinary research in genetics and genomics. Topics include genome analysis, regulatory genomics, association analysis, association study design, isolated and admixed populations, population substructure, human structural variation, model organisms, and genomic technologies. Computational techniques include those from statistics and computer science. May be repeated for credit with topic change. Letter grading.

236A. Advanced Human Genetics. (4) Lecture, four hours. Advanced topics in human genetics related to Mendelian disease, molecular genetics, and relevant technologies. Topics include genomics, transcriptom-

ics, proteomics, positional cloning, epigenetics, and functional genomics. Reading materials include original research papers and reviews. Letter grading.

236B. Advanced Human Genetics. (4) Lecture, four hours. Recommended preparation: introductory statistics knowledge equivalent to Biostatistics 110A, Statistics 100A, or 110A and general genetics knowledge equivalent to Ecology and Evolutionary Biology 121 or Molecular, Cell, and Developmental Biology 144. Advanced topics in human genetics related to complex genetic traits and common diseases, with emphasis on biostatistics and mathematical modeling. Reading materials include original research papers and reviews. S/U or letter grading.

C244. Genomic Technology. (4) Lecture, three hours; discussion, one hour. Requisite: Life Sciences 4. Survey of key technologies that have led to successful application of genomics to biology, with focus on theory behind specific genome-wide technologies and their current applications. Concurrently scheduled with course C144. S/U or letter grading.

M252. Seminar: Advanced Methods in Computational Biology. (2) (Same as Bioinformatics M252 and Chemistry M252.) Seminar, one hour; discussion, one hour. Designed for advanced graduate students. Examination of computational methodology in bioinformatics and computational biology through presentation of current research literature. How to select and apply methods from computational and mathematical disciplines to problems in bioinformatics and computational biology; development of novel methodologies. S/U or letter grading.

M255. Mapping and Mining Human Genome. (3) (Same as Pathology M255.) Lecture, three hours. Basic molecular genetic and cytogenetic techniques of gene mapping. Selected regions of human genomic map scrutinized in detail, particularly gene families and clusters of genes that have remained linked from mouse to human. Discussion of localizations of disease genes. S/U or letter grading.

CM256. Human Genetics. (4) (Same as Microbiology CM256 and Molecular, Cell, and Developmental Biology CM256.) Lecture, three hours; discussion, two hours. Requisites: Life Sciences 3, 4. Application of genetic principles in human populations, with emphasis on cytogenetics, biochemical genetics, population genetics, and family studies. Lectures and readings in literature, with focus on current questions in fields of medical and human genetics and methodologies appropriate to answer such questions. Concurrently scheduled with course CM156. Independent research project required of graduate students. Letter grading.

M260A. Introduction to Bioinformatics. (4) (Formerly numbered M260.) (Same as Bioinformatics M260A, Chemistry CM260A, and Computer Science CM221.) Lecture, three hours; discussion, one hour. Enforced requisites: Biostatistics 100A or 110A or Mathematics 170A or Statistics 100A or 110A, and Computer Science 180 or Program in Computing 60 with grade of C- or better. Introduction to bioinformatics and methodologies, with emphasis on concepts and inventing new bioinformatic methods. Focus on sequence analysis and alignment algorithms. S/U or letter grading.

M278. Statistical Analysis of DNA Microarray Data. (4) (Same as Biostatistics M278.) Lecture, three hours. Requisite: Biostatistics 200C. Instruction in use of statistical tools used to analyze microarray data. Structure corresponds to analytical protocol an investigator might follow when working with microarray data. S/U or letter grading.

282. Human Genetics Seminar and Journal Club. (2) Seminar, one hour; discussion, one hour. Limited to graduate students. Participation and presentation in weekly journal club meeting whose topics reflect those of talk in Human Genetics Seminar Series during following week. Journal club presentation required. S/U or letter grading.

596. Directed Individual Study and Research. (2 to 12) Tutorial, to be arranged. Individual study or research for graduate students. May be repeated for credit. S/U grading.

597. Preparation for M.S. Comprehensive Examination or Ph.D. Qualifying Examinations. (2 to 12) Tutorial, to be arranged. Individual study for M.S. comprehensive examination or Ph.D. qualifying examinations. May be repeated for credit. S/U grading.

598. M.S. Thesis Research and Writing. (2 to 12) Tutorial, to be arranged. Preparation of research data and writing of M.S. thesis. May be repeated for credit. S/U grading.

599. Ph.D. Dissertation Research and Writing. (2 to 12) Tutorial, to be arranged. Preparation of research data and writing of Ph.D. dissertation. May be repeated for credit. S/U grading.

INDO-EUROPEAN STUDIES

*Interdepartmental Program
College of Letters and Science*

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H. Craig Melchert, Ph.D., *Chair*

Faculty Administrative Committee

Vyacheslav V. Ivanov, Ph.D. (*Slavic Languages and Literatures*)
Stephanie W. Jamison, Ph.D. (*Asian Languages and Cultures*)
H. Craig Melchert, Ph.D. (*Linguistics*)
Joseph F. Nagy, Ph.D. (*English*)
Christopher M. Stevens, Ph.D. (*Germanic Languages*)
Brent H. Vine, Ph.D. (*Classics*)

Scope and Objectives

The prime aim of the interdisciplinary Indo-European Studies Program is the integral study of Indo-European culture, based on comparative linguistics, archaeology, social structure, and religion. The Ph.D. in Indo-European Studies is offered with two alternative major emphases: Indo-European linguistics and Indo-Iranian or other specialized language area studies.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degree

The Indo-European Studies Program offers Candidate in Philosophy (C.Phil.) and Doctor of Philosophy (Ph.D.) degrees in Indo-European Studies.

Indo-European Studies

Lower Division Courses

M20. Visible Language: Study of Writing. (5) (Same as Asian M20, Near Eastern Languages M20, Slavic M20, and Southeast Asian M20.) Lecture, three hours; discussion, one hour. Consideration of concrete means of language representation in writing systems. Earliest representations of language known are those of Near East dating to end of 4th millennium B.C. While literate civilizations of Egypt, Indus Valley, China, and Mesoamerica left little evidence of corresponding earliest developments, their antiquity and, in case of China and Mesoamerica, their evident isolation mark these centers as loci of independent developments in writing. Basic characteristics of early scripts, assessment of modern alphabetic writing systems, and presentation of conceptual basis of semiotic language representation. Origins and development of early non-Western writing systems. How Greco-Roman alphabet arose in 1st millennium B.C. and how it compares to other modern writing systems. P/NP or letter grading.

M70. Origin of Language. (5) (Same as Communication Studies M70 and German M70.) Lecture, three hours; discussion, one hour. Theoretical and methodological issues surrounding origin of language. Topics include evolutionary theory, evolution of man, how language is organized in brain, and science of language, including physiology of speech, phonetics, and comparative reconstruction. Letter grading.

Upper Division Courses

131. European Archaeology, Neolithic to Bronze Age. (4) Lecture, four hours. Survey of European cultures from beginning of food-producing economy in 7th millennium B.C. to beginning of Bronze Age in 3rd millennium B.C. P/NP or letter grading.

132. European Archaeology: Bronze Age. (4) Requisite: course 131. Survey of European cultures from around 3000 B.C. to the period of destruction of the Mycenaean culture about 1200 B.C. Aegean area and rest of Europe.

M150. Introduction to Indo-European Linguistics. (5) (Same as Linguistics M150.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: Linguistics 1 or 20. Indo-European languages (ancient and modern), including their relationships, chief characteristics, writing systems, and sociolinguistic contexts; nature of reconstructed Indo-European proto-language and proto-culture. One or more Indo-European languages may be investigated in detail. P/NP or letter grading.

C160. Indo-European Comparative Mythology and Poetics. (4) Seminar, three hours. Preparation: familiarity with at least one ancient Indo-European language. Comparison of major Indo-European mythological and poetic traditions and reconstruction of their common sources. Topics include divinities and their names; symbolic systems in social context; myths, folk narratives, belief systems; relations with other traditions; literary continuations of mythopoetic material. Concurrently scheduled with course C260. P/NP or letter grading.

M168. Introductory Hittite. (4) (Same as Ancient Near East M168.) Lecture, two hours; recitation, one hour. Recommended preparation: knowledge of language with case system. Introduction to Hittite grammar by series of graded lessons covering morphology and syntax, followed by readings of selected texts from variety of genres in transliteration. P/NP or letter grading.

199. Special Studies. (2 to 8) Tutorial, to be arranged. P/NP or letter grading.

Graduate Courses

200. Proseminar: Indo-European Studies. (2) Seminar, two hours every other week. Required of graduate Indo-European studies students during first year. Introduction to graduate-level research in Indo-European studies. S/U grading.

205. Indo-European Phonology. (4) Lecture, three hours. Requisites: course M150, Linguistics 110. Study of proto-Indo-European phonology and its historical development into most important of oldest attested descendant languages. S/U or letter grading.

210. Indo-European Morphology. (4) Lecture, three hours. Comparative study of proto-Indo-European nominal and verbal morphology and its historical development into most important of oldest attested descendant languages. S/U or letter grading.

215. Indo-European Syntax. (4) Lecture, three hours. Requisite: course 210. Comparative and historical study of syntax in proto-Indo-European and most important of oldest attested descendant languages. S/U or letter grading.

M230A-M230B. Old Iranian. (4-4) (Same as Iranian M230A-M230B.) Lecture, four hours. Studies in grammars and texts of Old Persian and Avestan. Comparative considerations. Only course M230B may be repeated for credit. S/U or letter grading.

250A-250B. European Archaeology. (4-4) Seminar, three hours. Studies in ancient European archaeological materials and their relationship to Near East, Western Siberia, and Central Asia. May be repeated for credit. In Progress (250A) and S/U or letter (250B) grading.

C260. Indo-European Comparative Mythology and Poetics. (4) Seminar, three hours. Preparation: ability to read original sources in at least one ancient Indo-European language. Comparison of major Indo-European mythological and poetic traditions and reconstruction of their common sources. Topics include divinities and their names; symbolic systems in social context; myths, folk narratives, belief systems; relations with other traditions; literary continuations of mythopoetic material. Concurrently scheduled with course C160. S/U or letter grading.

280A-280B. Seminars: Indo-European Linguistics. (4-4) Seminar, three hours. Requisite: course 210. Selected topics in Indo-European comparative grammar for advanced graduate students. S/U or letter grading.

596. Directed Individual Studies. (2 to 8) Tutorial, to be arranged. S/U grading.

597. Preparation for Ph.D. Qualifying Examinations. (2 to 8) Tutorial, to be arranged. S/U grading.

599. Research for Ph.D. Dissertation. (2 to 8) Tutorial, to be arranged. S/U grading.

INFORMATION STUDIES

Graduate School of Education and Information Studies

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Gregory H. Leazer, D.L.S., *Chair*

Professors

Christine L. Borgman, Ph.D. (*Presidential Professor of Information Studies*)

Johanna R. Drucker, Ph.D. (*Martin and Bernard Breslauer Professor of Bibliography*)

Anne J. Gilliland-Swetland, Ph.D.

Leah A. Lievrouw, Ph.D.

Beverly P. Lynch, Ph.D.

Mary Niles Maack, D.L.S.

John V. Richardson, Ph.D.

Professors Emeriti

Marcia J. Bates, Ph.D.

Howard A. Besser, Ph.D.

Harold Borko, Ph.D.

Robert M. Hayes, Ph.D.

Russell Shank, D.L.S.

Elaine Svenonius, Ph.D.

Diana M. Thomas, Ph.D.

Virginia A. Walter, Ph.D.

Associate Professors

Clara Chu, Ph.D.

Jonathan Furner, Ph.D.

Christopher M. Kelty, Ph.D.

Gregory H. Leazer, D.L.S.

Ellen J. Pearlstein, M.A.

Assistant Professors

Jean-François Blanchette, Ph.D.

Steven Ricci, M.A., Ph.D.

Ramesh Srinivasan, Ph.D.

Lecturers

Murtha Baca, Ph.D.

Stuart Biegel, J.D.

Keri S. Botello, M.L.S.

Lynn Boyden, M.L.S.

David Cappoli, M.L.S.

Andra M. Darlington, M.L.I.S.

Loretta M. Gaffney, M.S.

Esther S. Grassian, M.L.S.

Joan Kaplowitz, Ph.D.

Julie Kwan, M.S.

Victoria McCargar, M.L.I.S.

Stacey McKeever, M.L.I.S.

Cynthia L. Mediavilla, Ph.D.

Luis H. Mendes, M.L.I.S.

Mary E. Menzel, M.L.I.S.

Eva Mitnick, M.L.S.

Teresa Portilla Omidisalar, M.L.S.

Alma Ortega, M.L.I.S., M.A.

Romelia Salinas, Ph.D.

Ward Smith, M.L.I.S.

Scope and Objectives

The Department of Information Studies has one of the top-ranked programs of its kind in the country and has developed an international reputation in the areas of information policy, information-seeking behavior, user interface development, archives, preservation, and cataloging. Whether students choose to pursue a master's degree or a Ph.D., they graduate with a broad understanding of both theory and practice.

Students with master's degrees go on to careers as librarians, archivists, and information professionals in a variety of organizational settings. The Ph.D. focuses on the preparation of scholars in the field.

For information about the department and programs, see <http://is.gseis.ucla.edu>.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Information Studies offers the Master of Library and Information Science (M.L.I.S.) degree and the Doctor of Philosophy (Ph.D.) degree in Information Studies.

One concurrent degree program (Library and Information Science M.L.I.S./Management

M.B.A.) and one articulated degree program (Library and Information Science M.L.I.S./Latin American Studies M.A.) are also offered.

Information Studies

Lower Division Courses

10. Fundamentals of Information Searching and Evaluation. (5) Lecture, one hour; discussion, one hour; laboratory, two hours. Designed for first-year undergraduate students. Introduction to bibliographic and information resources that encompass both general and specialized materials. Specifically designed to facilitate knowledgeable use of UCLA libraries and efficient retrieval of information. Letter grading.

20. Introduction to Information Studies. (5) Lecture, five hours. Designed for undergraduate students. Exploration of social, economic, cultural, ethical, and structural aspects of information, and issues that are critical, emergent, and dominant in society as information proliferates globally via networks and computer-mediated communication. Letter grading.

30. Internet and Society. (5) Lecture, five hours. Designed for undergraduate students. Examination of information technology in society, including Internet, World Wide Web, search engines (e.g., Google, Yahoo, Lycos), retrieval systems, electronic publishing, and distribution of media, including newspapers, books, and music. Exploration of many of these technologies, social, cultural, and political context in which they exist, and how social relationships are changing. Letter grading.

Upper Division Courses

100. Perspectives on Literacy. (4) Lecture, two hours; discussion, two hours. Designed for sophomores/juniors/seniors. Open to M.L.I.S. students and to graduate students from other schools/departments. Interdisciplinary introduction to literacy as a historical, social, and political issue. Topics include culture and literacy, historical development of literate societies, social definitions of illiteracy, literacy campaigns, literacy as a national and local policy issue. Letter grading.

110. Information Resources and Libraries. (5) Lecture, one hour; discussion, one hour; laboratory, two hours. Designed for sophomores/juniors/seniors. Not open for credit to M.L.I.S. students. Introduction to bibliographic and information resources that encompass both general and specialized materials as well as relevant research methodologies in social sciences, physical sciences, and humanities. Specifically designed to facilitate knowledgeable use of libraries and efficient retrieval of information. Letter grading.

111A-M111E. Ethnic Groups and Their Bibliographies. (4 each) Lecture, four hours. Introduction to bibliographical and research tools and methods for students with interests in ethnic groups. Sections on other ethnic groups may be added. Offered in collaboration with several centers for ethnic studies. May not be repeated for credit. P/NP or letter grading. **111A.** American Indian History and Culture; **111B.** African American History and Culture; **M111C.** Latino History and Culture. (Same as Chicana and Chicano Studies M112.); **111D.** Asian American History and Culture; **M111E.** Jewish History and Culture. (Same as Jewish Studies M111E.)

139. Letterpress Laboratory. (1) Laboratory, one hour. Hands-on printing experience in letterpress shop designed to give students in information studies, design, or other disciplines understanding of printing process. Basic instruction provided, and students work on group project for duration of term. P/NP grading.

180. Special Topics in Information Studies. (4) Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Selected topics or issues related to social, cultural, economic, or political aspects of information and information systems. Consult *Schedule of Classes* for topics and instructors. May be repeated once for credit with topic change. P/NP or letter grading.

199. Directed Research in Information Studies. (2 to 4) Tutorial, one hour. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. Letter grading.

Graduate Courses

200. Information in Society. (4) Lecture, two hours; discussion, two hours. Examination of processes by which information and knowledge are created, integrated, disseminated, organized, used, and preserved. Topics include history of communication technologies, evolution of literacy, development of information professions, and social issues related to information access. Letter grading.

201. Ethics, Diversity, and Change in Information Professions. (4) Lecture, two hours; discussion, two hours. Service learning course that serves as forum to discuss, learn, and understand ethical challenges of multicultural information society that shape societal, professional community, and individual views and impact professional practice, decision making, and public policy. S/U or letter grading.

202. History of Publishing and the Book Trade. (4) Lecture, four hours. Requisite: course 200. Publishing and book trade history, with particular reference to libraries and book collecting, changing aspects of book production and distribution within setting of cultural history. Letter grading.

203. Seminar: Intellectual Freedom and Information Policy Issues. (4) Seminar, four hours. Investigation of concept of intellectual freedom, information policy issues, civil liberties and civil rights, censorship, and other restraints on access to information. Letter grading.

204. Electronic Publishing. (4) Discussion, four hours. Basic understanding of scholarly process and familiarity with World Wide Web and digital libraries assumed. Designed for master's and doctoral students in communication, education, English, information studies, management, and sociology. Survey of current issues in electronic publishing. Topics include history of publishing, digital libraries, scholarly communication, economics, perspective of publishers, universities, and librarians, uses and users of electronic documents, electronic books; new genres in electronic communication, visions of future. Letter grading.

205. Cyberspace Law and Policy. (4) Lecture, four hours. Legal and policy concerns of networked technologies from international perspective. Emphasis on jurisdictional issues, freedom of expression, intellectual property, privacy, security, equity, and electronic commerce in online environment. S/U or letter grading.

207. International Issues and Comparative Research in Library and Information Science. (4) Lecture, four hours. History and development of international organizations and programs in library and information science. Identification of key issues in international exchange of information. Introduction to comparative method as procedure for study and research. Letter grading.

208. Scholarly Communication and Bibliometrics. (4) Lecture, four hours. Preparation: one inferential statistics course. Survey of current theory, method, and empirical studies at intersection of scholarly communication and bibliometrics, seeking to understand flow of ideas through published record, whether in print, electronic form, or other media. Letter grading.

209. Seminar: Information Policy and Issues. (4) Seminar, four hours. Analysis of social evolution of information-oriented societies. Historical factors and current trends explored through discussion of selected international and domestic issues. Implications for information policy. S/U or letter grading.

220. Design of Library and Information Services. (4) Lecture, two hours; discussion, two hours. Principles and methods for planning and designing user-driven library and information services. Principles and methods for assessing information needs of designated populations and for designing services that meet those needs. Letter grading.

M225. Latin American Research Resources. (4) (Same as History M265 and Latin American Studies M200.) Discussion, three hours. General and specialized materials in fields concerned with Latin American studies. Library research techniques provide experience and competency required for future bibliographic and research sophistication as basis for enhanced research results. S/U or letter grading.

227. Information Services in Culturally Diverse Communities. (4) Lecture, four hours. Issues in provision of information services in multiethnic and multilingual society. Understanding role of information institutions in promoting cultural diversity and preserving ethnic heritage. Letter grading.

228. Measurement and Evaluation of Information Systems and Services. (4) Lecture, two hours; discussion, two hours. Preparation: one research methods course. Recommended: one library automation course. Information systems and services from points of view of their cost and effectiveness in meeting desired objectives. Review of principles of costing. Study of literature in which measures have been developed to evaluate effectiveness of document collections, reference and information retrieval services, document delivery systems, networking, and technical services, including circulation, acquisitions, and document description. S/U or letter grading.

M229B. Africana Bibliography and Research Methods. (4) (Same as African Studies M229B.) Discussion, four hours. Problems and techniques of research methodologies related to Africana studies. Emphasis on relevant basic and specialized reference materials, using full range of available information resources, including library collections of books, serials, and computerized databases. S/U or letter grading.

M229C. Introduction to Slavic Bibliography. (2) (Same as Slavic M229.) Lecture, two hours. Introduction to Slavic and East European bibliography for the humanities and social sciences. Emphasis to be determined by requirements and background of enrolled students. Topics include relevant library terminology and concepts; survey of languages and transliteration systems; acquisition of Slavic and East European library materials; Slavic and East European scholarship in the West; relevant reference sources, archival resources, and research methods; survey of online databases; compilation of bibliographies. S/U or letter grading.

233. Records and Information Resources Management. (4) Lecture, three hours. Introduction to records and information resources management in corporate, government, and other organizational settings, including analysis of organizational information flow, classification and filing systems, records retention scheduling, records protection and security, reprographics and image management technology, and litigation support. Letter grading.

234. Contemporary Children's Literature. (4) Lecture, four hours. Reading interests and correlative types of literature surveyed with reference to growth and development of children. Emphasis on role of librarian in responding to needs and abilities of children through individualized reading guidance. S/U or letter grading.

236. Historical Bibliography. (4) Lecture, four hours. Requisites: courses 200, 435. History of letterpress formats (books, broadsides, magazines, newspapers, some music, etc.) as well as materials and methods of production, distribution, and readership in their social, political, and economic context. Emphasis varies but is usually on developments prior to 1800. Attention to historiography of field, including antiquarian, Anglo-American, and *histoire du livre* approaches. Letter grading.

237. Analytical Bibliography. (4) Lecture, four hours. The book as physical object and its relationship to transmission of text. History and methods of analytical bibliography, with particular emphasis on handpress books. Printing processes as related to bibliography and librarianship. Discussions, demonstrations, and experiments in design, composition, and presswork. Letter grading.

M238. Environmental Protection of Collections. (4) (Same as Conservation M240.) Lecture, two hours; laboratory, two hours. Requisite: course 432. Review of environmental and biological agents of deterioration, including light, temperature, relative humidity, pollution, insects, and fungi. Emphasis on monitoring to identify agents and understanding of materials sensitivities, along with protective measures for collections. Letter grading.

239. Letterpress Laboratory. (1) Laboratory, two hours. Hands-on printing experience in letterpress shop designed to give students in information studies, design, or other disciplines understanding of printing process. Basic instruction provided, and students work on group project for duration of term. S/U or letter grading.

240. Management of Digital Records. (4) Lecture, three hours. Introduction to long-term management of digital administrative, information, communications, imaging, or research systems and records. Topics include electronic recordkeeping, enterprise and risk management, systems analysis and design, metadata development, data preservation, and technological standards and policy development. Letter grading.

245. Information Access. (4) Lecture, two hours; discussion, one hour. Requisites: courses 200, 260. Provides fundamental knowledge and skills enabling information professionals to link users with information. Overview of structure of literature in different fields; information-seeking behavior of user groups; communication with users; development of search strategies using print and electronic sources. Letter grading.

246. Information-Seeking Behavior. (4) Lecture, three hours; discussion, one hour. Study of factors and influences, both individual and social, associated with human beings needing, using, and acting on information. Topics include information theory, human information processing, information flow among social and occupational groups, and research on information needs and uses. Letter grading.

250. Techniques and Issues in Information Access. (4) Lecture, four hours. Requisite: course 245. General reference materials (not specific to subject access), with advanced work in reference process and in cognitive and behavioral aspects of inquirers and expert reference librarians. Letter grading.

251. Seminar: Specialized Literatures. (4) Seminar, four hours. Requisite: course 245. Exposure to major literatures across spectrum of disciplines in three broad areas: (1) arts and humanities, (2) social sciences, (3) natural sciences and engineering. Students become familiar with knowledge structures; emphasis on reference and information sources for scholarly research. Letter grading.

M253. Medical Knowledge Representation. (4) (Same as Biomedical Engineering M226.) Seminar, four hours; outside study, eight hours. Designed for graduate students. Issues related to medical knowledge representation and its application in healthcare processes. Topics include data structures used for representing knowledge (conceptual graphs, frame-based models), different data models for representing spatio-temporal information, rule-based implementations, current statistical methods for discovery of knowledge (data mining, statistical classifiers, and hierarchical classification), and basic information retrieval. Review of work in constructing ontologies, with focus on problems in implementation and definition. Common medical ontologies, coding schemes, and standardized indices/terminologies (SNOMED, UMLS). Letter grading.

M254. Medical Information Infrastructures and Internet Technologies. (4) (Same as Biomedical Engineering M227.) Lecture, four hours; outside study, eight hours. Designed for graduate students. Introduction to networking, communications, and information infrastructures in medical environment. Exposure to basic concepts related to networking at several levels: low-level (TCP/IP, services), medium-level (network topologies), and high-level (distributed computing, Web-based services) implementations. Commonly used medical communication protocols (HL7, DICOM) and current medical information systems (HIS, RIS, PACS). Advances in networking, such as wire-

less health systems, peer-to-peer topologies, grid/cloud computing. Introduction to security and encryption in networked environments. Letter grading.

M255. Medical Decision Making. (4) (Same as Biomedical Engineering M228.) Lecture, four hours; outside study, eight hours. Designed for graduate students. Overview of issues related to medical decision making. Introduction to concept of evidence-based medicine and decision processes related to process of care and outcomes. Basic probability and statistics to understand research results and evaluations, and algorithmic methods for decision-making processes (Bayes theorem, decision trees). Study design, hypothesis testing, and estimation. Focus on technical advances in medical decision support systems and expert systems, with review of classic and current research. Introduction to common statistical and decision-making software packages to familiarize students with current tools. Letter grading.

256. Information Resources for Business. (4) Lecture, four hours. Requisite: course 245. Introduction to information needs of business world. Business guides, encyclopedias, directories, yearbooks, indexes, loose-leaf services, government publications, databases, and other sources of business literature. Letter grading.

258. Legal Information Resources and Libraries. (4) Lecture, four hours. Introduction to information resources in law, with emphasis on primary authority and indexes to legal literature. Legal research skills. Law library services and management. Letter grading.

259. Seminar: Information Access. (4) Seminar, four hours. Requisite: course 245. Discussion of policies and issues related to basic and advanced reference materials, reference process, and psychological aspects of inquirers and expert reference librarians. Letter grading.

260. Information Structures. (4) Lecture, four hours; discussion, one hour. Required core course. Introduction to various systems and tools used to organize materials and provide access to them, with emphasis on generic concepts of organization, classification, hierarchy, arrangement, and display of records. Provides background for further studies in cataloging, reference, information retrieval, and database management. Letter grading.

269. Seminar: Information Structures. (4) Seminar, four hours. Requisites: course 260, one other information structures course. Specialized studies in selected areas of descriptive and bibliographical cataloging, subject vocabularies and classifications, and metadata. May be repeated once. Letter grading.

270. Introduction to Information Technology. (4) Lecture, four hours. Introduction to theories and principles of information technologies. Topics include social issues of information technologies and design and development of information systems. Background provided for further studies in information retrieval and design and maintenance of information systems. S/U or letter grading.

272. Human/Computer Interaction. (4) Lecture, four hours. Preparation: one programming course, one inferential statistics course. Survey of social, behavioral, design, and evaluation issues in human/computer interaction, with readings from several disciplines. Extensive use of technology demonstrations and class discussions. Recommended for students in any discipline involved in design or implementation of information technologies. Letter grading.

274. Database Management Systems. (4) Lecture, three hours; laboratory, two hours. Theories, principles, and practicalities of database systems, including data models, retrieval mechanisms, evaluation methods, and storage, efficiency, and security considerations. S/U or letter grading.

275. Development of Cultural Information Sources Using Digital Multimedia. (4) Lecture, two hours; laboratory, two hours. Overview of technologies, techniques, and principles underlying development and packaging of cultural information resources into digital multimedia such as digital libraries, World Wide Web

homepages, and CD-ROMs, as well as user, policy, presentation, motivation, and evaluation considerations. Letter grading.

276. Information Retrieval Systems: Structures and Algorithms. (4) Lecture, four hours. Requisites: courses 245, 260. Survey of methods of file organization, retrieval techniques, and search strategies in control of information in computerized form. Letter grading.

277. Information Retrieval Systems: User-Centered Designs. (4) Lecture, two hours; discussion, two hours. Requisites: courses 245, 260. Design implications of interaction between users and features of automated information systems and interfaces that are specific to information-seeking process. Emphasis on search strategy and subject access through use of thesauri and other vocabularies. Letter grading.

279. Seminar: Information Systems. (4) Seminar, four hours. Preparation: at least one course from 246, 272, 276, 277, 455. Requisites: courses 200, 260. Content varies from term to term to allow emphasis on specialized topics such as vocabulary control, file design, indexing, classification, text processing, measurement of relevance, evaluation of information systems, and social and policy issues related to information technology and services. Letter grading.

280. Social Science Research Methodology for Information Studies. (4) Lecture, four hours. Understanding of nature, uses, and practice of research appropriate to information studies. Identification of research problems and design and evaluation of research. Social science quantitative and qualitative methods. Emphasis on inquiry methodology and empirical research. S/U or letter grading.

281. Historical Methodology of Information Studies. (4) Lecture, four hours. Requisite: course 200. Introduction to historical research as it relates to library and information science. Identification of key primary and secondary source material for writing history in field. Critical analysis of selected histories of various areas in the profession. Problem-oriented approach. Letter grading.

282. Principles of Information Systems Analysis and Design. (4) Discussion, four hours. Theories and principles of special systems development, including determination of requirements, technical design and evaluation, and internal organization. S/U or letter grading.

285. Introduction to Research Design and Methodology. (4) Seminar, three hours. Designed for Ph.D. students. Introduction to research traditions in library and information science: quantitative/qualitative social science methods, ethnographic/field approaches, and historiography/critical approaches. Epistemological foundations of research, formulating research questions, and designing appropriate research studies. Letter grading.

289. Seminar: Special Issues in Information Studies. (2 to 4) Seminar, two to four hours. Identification, analysis, and discussion of critical intellectual, social, and technological issues facing the profession. Topics may include (but not limited to) expert systems, literacy, electronic networks, youth at risk, information literacy, historical bibliography, preservation of electronic media, etc. May be repeated with topic change. Letter grading.

290. Research Seminar: Information Studies. (1 to 2) Seminar, one to two hours. Designed for Ph.D. students. Emphasis on recent contributions to theory, research, and methodology. May be repeated for credit. S/U grading.

291A. Doctoral Seminar: Theoretical Traditions in Information Studies. (4) Seminar, four hours. Nature of information studies—ontological, epistemological, and ethical accounts of information and of information arts and sciences. Conceptions, theories, and models of information; information-related artifacts, agents, contexts, institutions, practices, properties, values, and related phenomena. Interdisciplinary context—subfields of information studies and cognate disciplines. Frameworks for theory construction, such as critical theory, discourse analysis, hermeneutics, phenomenology, semiotics, social epistemology. Letter grading.

291B-291C. Special Topics in Theory of Information Studies. (4-4) (Not same as course 291B prior to Fall Quarter 2010.) Seminar, four hours. Enforced requisite: course 291A. Topics include information and evidence—record-keeping and memory-making, personal and community identity, accountability and trust. Information and design—design and implementation of information systems and services, information aesthetics. Information retrieval and knowledge organization. Information seeking, access, and use—contexts, techniques, needs, barriers. Information and power—groups, ideologies, identities, structures. Information and value—information ethics, evaluation of information services. Information policy and law—processes, institutions, players, stakes. Information institutions and professions—domains, ecologies, cultures, communities. Economics, geography, history, philosophy, politics, sociology of information. Letter grading.

292. Information as Evidence. (4) Seminar, four hours. Through close reading of scholarly works, exploration of how certain objects (e.g., records, books, statistics) acquire their particular role as evidence of historical events, authorial intention, social phenomena, collective trauma, and more. Special attention to kind of interventions that must be staged so that these objects retain their evidential value while subject to gradual decontextualization, physical degradation, and competition from contradictory evidence. S/U or letter grading.

293. Doctoral Seminar: Information Retrieval. (4) Seminar, four hours. Designed for Ph.D. students. Intellectual principles for organization of information, including principles for design of systems for acquiring, organizing, and retrieving information. Also includes system-specific user studies to extent that design of information systems is predicated on their evaluation and use. S/U or letter grading.

294. Doctoral Seminar: Information Policy. (4) Seminar, four hours. Designed for Ph.D. students. Examination of social, political, and economic influences in development of library and information science and management of information organizations and resources. S/U or letter grading.

295. Doctoral Seminar: Information Seeking. (4) Seminar, four hours. Designed for Ph.D. students. Examination of behavioral and cognitive aspects of inquirer's information needs and uses, including inquirer's characteristics, information problems, psychological needs, and uses of information and information technologies, and aspects of question negotiation. S/U or letter grading.

296. Doctoral Seminar: Information Structures. (4) Seminar, four hours. Designed for Ph.D. students. Intellectual principles for organization of information, including principles for design of systems for acquiring, organizing, and retrieving information. System-specific user studies included to extent that design of information systems is predicated on their evaluation and use. S/U or letter grading.

297. Doctoral Seminar: Information Institutions and Professions. (4) Seminar, four hours. Designed for Ph.D. students. Introduction to social theory and examination of several analytical frameworks that can be used to analyze social, cultural, and political roles of information institutions and professionals who direct them. Letter grading.

298A. Doctoral Seminar: Research Methods and Design. (4) (Formerly numbered 291B.) Seminar, four hours. Survey of quantitative, qualitative, and historical research designs. Ethical issues; conceptualization and measurement; indexes, scales, and sampling; experimental, survey, field, and evaluation research; data analysis. Letter grading.

298B-298C. Special Topics in Methodology of Information Studies. (4-4) Seminar, four hours. Enforced requisite: course 298A. Topics include anthropological fieldwork methods, archival methodology, bibliographical studies, textual analysis, discourse analysis, historical methods, information visualization, network analysis—bibliometrics, informetrics, scientometrics, social network analysis. Letter grading.

M299. Research Resources for European Studies. (2) (Same as French M299, German M299, Italian M299, Slavic M299, and Spanish M299.) Lecture, two hours. Essentials of library research strategy and effective searching in key print and online resources for European and Russian studies. Through combination of lecture, online demonstration, and hands-on activities in and outside class, students understand how to efficiently use library and databases. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

400. Professional Development and Portfolio Design. (2 to 4) Lecture, two hours; discussion, two hours. Preparation: completion of information studies core courses. Drawing on literature from many fields, exploration of issues related to professional development, such as career planning, continuing education, mentoring, and reflective practice; students also engage in process of guided portfolio design for M.L.I.S. degree. S/U grading.

410. Management Theory and Practice for Information Professionals. (4) Lecture, two hours; discussion, two hours. Principles and practice of management in all types of organizations where information professionals work. Letter grading.

415. Library Personnel Management. (4) Lecture, four hours. Basic principles of personnel management. Survey of current personnel practices in libraries; how basic principles apply or need to be modified to fit library settings. S/U or letter grading.

416. Interpersonal Communication Issues in Library Systems. (4) Lecture, four hours. Examination of interpersonal communication patterns in library management and staff relations, in resource sharing, and in providing information services. Emphasis on relationships within organizational environment and on effective communication styles in decision making, managing conflict, and implementing change. S/U grading.

421. Special Libraries and Information Centers. (4) Lecture, four hours. Organization, administration, collections, facilities, finances, and problems of special libraries and of special collections within general libraries. Methods of handling nonbook materials. Current trends in documentation and mechanization. S/U or letter grading.

422. College, University, and Research Libraries. (4) Lecture, four hours. Organization, administration, collections, facilities, finances, and problems of college and university libraries and their relationships within institutions of which they are part. Functions of research libraries and work of their staffs in serving scholars. S/U or letter grading.

423. Public Libraries. (4) Lecture, four hours. Government, organization, and administration of municipal, county, and regional public libraries; developments in changing patterns of public library service. S/U or letter grading.

424. Storytelling. (4) Lecture, two hours; demonstration, two hours. Theory and practice of telling stories to children and adults in public and school libraries. S/U grading.

425. Library Services and Programs for Children. (4) Lecture, two hours; discussion, two hours. Theory and practice of service to children in public libraries. Overview of professional library service to children aged 14 and under; provides opportunities for students to gain experience in particular skills needed to provide that service. Letter grading.

426. Library Services and Literature for Youth. (4) Lecture, four hours. Overview of literature and programs which are of interest to young adults (seventh grade and above). Discussion of special problems in working with young people and psychology of teenagers. S/U or letter grading.

430. Collection Development and Acquisition of Library Materials. (4) Lecture, four hours. Background of publishing and the book trade (new and antiquarian) pertinent to collection development in public, school, academic, and special libraries. Theory and practice of collection development and management. Organization and administration of acquisitions departments. Letter grading.

431. American Archives and Manuscripts. (4) Lecture, four hours. Identification, description, subject analysis, and organization of records contained in archives and manuscript collections. Administration. User requirements. Problems of acquisition, legal title, literary property, preservation, accessibility, and use. S/U or letter grading.

432. Issues and Problems in Preservation of Heritage Materials. (4) Lecture, six hours. Introduction to fields of library conservation and preservation, with emphasis on preservation administration. Letter grading.

435. Fundamentals of Bibliography. (4) Lecture, four hours. Requisite: course 200. Organization, control, and elements of bibliographical apparatus, new techniques and tools, theory, methods, and trends in bibliographical research in relationship to librarianship. Development and fundamentals of several branches of bibliography: enumerative (or systematic), physical (analytical or critical, descriptive). Letter grading.

438A. Seminar: Advanced Issues in Archival Science—Archival Appraisal. (4) Seminar, four hours. Requisite: course 431. Evaluation and examination of contributions of key figures in development of archival appraisal theory; identification and evaluation of distinct movements in archival appraisal; identification of cultural, political, sociological, and technological movements that can have impact on appraisal methodologies. Letter grading.

438B. Seminar: Advanced Issues in Archival Science—Archival Description and Access Systems. (4) Seminar, four hours. Requisite: course 431. Exploration of history of archival description and access systems in the U.S. and their development since World War II; data collection; access tools and implications of these issues in development of online archival access systems. Letter grading.

447. Computer-Based Information Resources (Online Searching). (4) Lecture, four hours. Requisite: course 245. Emphasis on use of reference and resource databases and different vendor systems. File structure and hardware requirements. Analyses of information needs and investigation of databases addressing those needs. Letter grading.

448. Information Literacy Instruction: Theory and Technique. (4) Lecture, four hours. History, theory, methods, and materials of user education/bibliographic instruction in libraries and other information retrieval environments. Examination of variety of user education/bibliographic instruction theories and methodologies, including overview of planning and administration. Identification of problems in user education/bibliographic instruction. Applications of methods of teaching use of libraries and information resources. S/U or letter grading.

455. Government Information. (4) Lecture, four hours. Introduction to nature and scope of government information promulgated by federal government, as well as by state, municipal, international, and foreign governments. Problem-oriented approach. S/U or letter grading.

457. Health Sciences Librarianship. (4) Lecture, four hours. Health sciences information resources and services, management of health sciences information resources and services, health sciences environment and policies, information systems and technology. Letter grading.

461. Descriptive Cataloging. (4) Lecture, four hours. Entry and description of library materials. Constitution, structure, and form of the library catalog. Cataloging services, tools, and procedures. Cataloging rules and their application. S/U or letter grading.

462. Subject Cataloging and Classification. (4) Lecture/discussion, four hours. Requisite: course 461. Overview of major alphabetic-subject and systematic indexing languages and their use in manual and online environments, including theory and application of Library of Congress subject headings and of Dewey decimal and Library of Congress classifications. S/U or letter grading.

463. Indexing and Thesaurus Construction. (4) Lecture, four hours. Principles of design and methods of construction of thesauri. Evaluation and overview of thesauri used in manual and online environments. Basic professional techniques for indexing variety of types of materials and for preparing informative and indicative abstracts. Letter grading.

464. Metadata. (4) Lecture, four hours. Introduction to variety of metadata provided for digitized and other electronic information resources. Introductory theory and practice designing and applying metadata. S/U or letter grading.

473. Information Technology and Libraries. (4) Lecture, four hours. Overview of major components of library automation: circulation control, acquisitions and serials, public access information systems, and data conversion. Relationships among various automation entities, including internal library automation, networks and vendors (such as bibliographic utilities, regional networks, and online services), and automation of parent organizations (universities, municipalities, corporations, and government agencies). Developments in standards for information processing and new information technologies. Letter grading.

497. Fieldwork in Libraries or Information Organizations. (4 or 8) Fieldwork, 12 or 24 hours depending on nature and complexity of experience or project. Faculty-directed field experience in approved library, archive, or other information setting. Fieldwork experiences may include opportunities in state, national, and international institutions. S/U grading.

498. Internship. (4) Discussion, to be arranged. Supervised professional training in a library or information center approved by internship coordinator. Minimum of 120 hours per term. May be repeated twice. S/U grading.

596. Directed Individual Study or Research. (2 to 8) Tutorial, to be arranged. Directed special studies in fields of bibliography, librarianship, and information science. Variable conference time depending on nature of study or complexity of research. S/U grading.

597. Directed Studies for Ph.D. Qualifying Examinations. (2 to 12) Tutorial, to be arranged. S/U grading.

598. M.L.I.S. Thesis Research and Writing. (2 to 8) Tutorial, to be arranged. Designed for graduate library and information science students. Supervised independent research for candidates in M.L.I.S. thesis option. S/U grading.

599. Ph.D. Research and Writing. (2 to 12) Tutorial, to be arranged. S/U grading.

INSTITUTE OF THE ENVIRONMENT AND SUSTAINABILITY

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Scope and Objectives

The mission of the UCLA Institute of the Environment and Sustainability (IoES) is to advance cross-disciplinary research, teaching, and public service on matters of critical importance to the planet and the campus community. The environment is defined broadly to include the interrelated issues of global climate change, loss of biological diversity, and threats to human health and well-being from the use and misuse of natural resources, applying all the tools of scientific and policy analysis as well as moral and aesthetic values to the work. The environment is a crucial component of sustainability, which is defined as the simultaneous consideration of environmental, economic, and social concerns. Los Angeles itself is a vital asset to this mission. As an international megacity located in one of the world's most biologically diverse regions, Los Angeles is a magnet for scholars from around the world who are facing similar issues of pollution, access to potable water, demand for energy, fragmentation of habitat, and the need to restore ecological function to sprawling urban settlements in a manner that supports economic growth and that is socially just and equitable.

The IoES offers creative, multidisciplinary academic programs and courses that address the full complexity of current environmental problems and sustainable solutions. The Bachelor

of Science degree in Environmental Science is an innovative dual-component degree program for students seeking a challenging and invigorating science curriculum. The first component, the Environmental Science major, provides students with disciplinary breadth in several areas important to environmental science. The second component, a minor or concentration in one of eight environmental science areas, provides students with focused disciplinary depth in an area of their choosing. The minor in Environmental Systems and Society is designed for students who wish to gain a deeper understanding of the relationships between environmental science and associated social and political issues.

The IoES also sponsors the Environment/General Education Clusters M1A, M1B, M1CW on the global environment. The cluster format is a series of three integrated courses taught over the Fall, Winter, and Spring Quarters. The Fall and Winter Quarter courses consist of lectures and discussions. The Spring Quarter consists of seminars and activities in which students explore specialized environmental and sustainability topics such as the history of environmental thought, environmental policy, and the impacts of human population.

Undergraduate Study

The Environmental Science major is a designated capstone major. In collaboration with a local agency or nonprofit institution, students work individually and in groups to complete projects that require them to integrate many of the skills, principles, theories, and concepts they have learned throughout the curriculum and apply them to real systems. Students are expected to contribute meaningfully to the analysis and solution of particular environmental science issues involving multiple disciplines and stakeholders with different perspectives. Those completing the major should possess critical thinking skills, problem-solving abilities, and familiarity with essential computational, data collection, and analysis skills, as well as to demonstrate effective oral and written communication skills. Graduates should also be able to identify key ethical issues and analyze the consequences of various professional dilemmas, as well as work productively as part of a team.

Environmental Science B.S.

Capstone Major

The Environmental Science B.S. program represents strong collaboration by the Institute of the Environment and Sustainability and the Departments of Atmospheric and Oceanic Sciences, Civil and Environmental Engineering, Earth and Space Sciences, Ecology and Evolutionary Biology, Environmental Health Sciences, and Geography. The program is designed for students who are deeply interested in the study of environmental science. There are two components to the program, and both must be completed to receive the degree. The first component, the Environmental Science major, requires completion of lower division re-

quirements grounded in basic natural sciences, a six-course upper division environmental science requirement reflecting the disciplinary breadth of environmental science, two social sciences/humanities courses, participation in an ongoing environmental science colloquium, and completion of an environmental science practicum. The second component is a minor or concentration in one of eight environmental science areas, each associated with a particular department. With assistance from IoES staff, students must formally apply to and be accepted by the associated department to receive the minor.

Preparation for the Major

Required: Chemistry 14A, 14B, and 14BL (or 20A, 20B, and 20L), Earth and Space Sciences 1 (required for the **geology or geophysics and planetary physics minor**) or Environment M10, Life Sciences 1, 2, Mathematics 3A and 3B (or 31A and 31B), Physics 6A and 6B (or 1A and 1B), Statistics 12 or 13.

For the **atmospheric and oceanic sciences and environmental engineering minors**, Mathematics 3C (or 32A) and Physics 1C (or 6C) are also required.

For the **conservation biology minor**, Chemistry and Biochemistry 14C (or 30A), Life Sciences 1, and 3 are also required.

For the **environmental health concentration**, Chemistry and Biochemistry 14C (or 30A) and Life Sciences 3 are also required.

For the **environmental systems and society minor**, two courses from Chemistry and Biochemistry 14C or 30A, Life Sciences 3, Mathematics 3C or 32A, and Physics 1C or 6C, and at least two courses from Astronomy 3, Earth and Space Sciences 15, 16, 20, Ecology and Evolutionary Biology 13, 25, Environment M10, 14 are also required.

For the **geography/environmental studies minor**, two courses from Chemistry and Biochemistry 14C or 30A, Life Sciences 3, Mathematics 3C or 32A, and Physics 1C or 6C, plus Geography 5 and one course from 1, 2, 3, 4, or 6 are also required. Students should take these courses before enrolling in upper division courses.

For the **geology minor**, Earth and Space Sciences 1, 61, Mathematics 3C or 32A, and Physics 1C or 6C are also required.

For the **geophysics and planetary physics minor**, Earth and Space Sciences 1, 8, 9, Mathematics 3C or 32A, and Physics 1C or 6C are also required.

Each course applied toward requirements for preparation for the major must be passed with a grade of C– or better. Students receiving a grade below C– in two courses, either in separate courses or repetitions of the same course, are subject to dismissal from the major.

Transfer Students

Transfer applicants to the Environmental Science major with 90 or more units must complete as many of the following introductory courses as

possible prior to admission to UCLA: two general chemistry courses with laboratory for majors, two general biology courses with laboratory for majors, two calculus courses, and two calculus-based physics courses.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

The major consists of four requirements: environmental science, social sciences/humanities, practicum/colloquium, and minor or concentration, as follows:

Environmental Science Requirements

Required: One course from each of the following six core environmental science areas. No more than two courses may be from any one department. (1) One *atmospheric and water science* course from Atmospheric and Oceanic Sciences 101, 103, M105, 130, Earth and Space Sciences C132, 153, or Geography 105; (2) one *climate science* course from Atmospheric and Oceanic Sciences 102, Geography 102, 104, or M106; (3) one *Earth science* course from Earth and Space Sciences C113, 119, 135, 139, 150, Environment M127, Geography 100, or 101; (4) one *ecology and conservation biology* course from Ecology and Evolutionary Biology 100, 109, 116, 151A, 154, Environment 121, Geography 111, or 113; (5) one *environmental management* course from Environment M134, M135, 160, or Public Policy C115; (6) one *pollutant sources, treatment, fate, and transport* course from Atmospheric and Oceanic Sciences 104, Chemical Engineering C118, Civil and Environmental Engineering 153, 154, M166, Environmental Health Sciences 100, C125, C152D, or C164.

Social Sciences/Humanities Requirements

Required: (1) One *humans and environment* course from Environment M132, M133, M137, M153, Geography M128, M137, 145, 150, 156, or Philosophy 125; (2) one *policy and politics* course from Environment 138, M155, M161, M162, or M164.

Practicum/Colloquium Requirements

Required: Four terms of Environment 170 and three capstone practicum courses (180A, 180B, 180C).

Minor and Concentration Requirements

No more than two of the courses below may be applied toward both these minors and concentrations and a major or minor in another department or program. Successful completion of a minor is indicated on the transcript and diploma.

For the **atmospheric and oceanic sciences minor**, at least two courses from Atmospheric and Oceanic Sciences 101, 102, 103, 104 and five courses from Atmospheric and Oceanic Sciences C110, C115, 130, 145, C160, C170, Chemistry and Biochemistry 110A are re-

quired. One course may be taken on a Passed/Not Passed basis.

For the **conservation biology minor**, Ecology and Evolutionary Biology 100, 116 (or Environment 121), and four to six courses from 101, 103, 105, 109, 111, 112, 114A, 122, 129, 151A, 154, 176, 180A are required.

For the **environmental engineering minor**, Chemical Engineering C118, Civil and Environmental Engineering 153 and five courses from 151, 154, 155, 156A, M166, Environmental Health Sciences C125, C164 are required.

For the **environmental health concentration**, Environmental Health Sciences 100, C135, Epidemiology 100, and three courses from Chemistry and Biochemistry 153A, Environmental Health Sciences C125, C140, C152D, C157, C164, 203 are required.

For the **environmental systems and society minor**, five courses from Environment M109, M111, 121, 122, M132, M133, M134, M135, M137, 138, M153, M155, 160, M161, M164 are required.

For the **geography/environmental studies minor**, three courses from Geography M106, M107, M109, 110, 113, M115, 116, 120, 121, 122, 123, 124, 125, 126, M127, M128, 129, M131, 132, 135, 136, M137, 159C, 159D, 159E, and any two additional upper division geography courses (except those from the preceding list and courses 194 through 199) are required.

For the **geology minor**, Earth and Space Sciences 112, 119, and three courses from C107, 116, 125, C132, 133, 134, 139, 150 are required.

For the **geophysics and planetary physics minor**, Earth and Space Sciences 134, 135, and three courses from M140, 152, 153, 154, 155 are required.

Each course applied toward requirements for the major, except Environment 170, must be taken for a letter grade. Students must maintain an overall grade-point average of 2.0 (C) or better in all courses applied toward the major.

Environmental Systems and Society Minor

The Environmental Systems and Society minor is designed for students who wish to augment their major program of study with courses addressing the relationships between environmental science and associated social and political issues. The minor seeks to impart a deeper understanding of environmental systems related to air, land, and water resources, providing a basis for sound professional decision making.

To enter the minor, students must be in good academic standing (2.0 grade-point average) and file a petition at the Institute of the Environment and Sustainability, 300 La Kretz Hall, (310) 206-9193.

Required Lower Division Courses (8 units): At least two courses from Astronomy 3, Atmospheric and Oceanic Sciences 1, 2, 3, Earth

and Space Sciences 1, 15, 16, 20, Ecology and Evolutionary Biology 10, 13, 25, Environment M1A, M1B, M10, 14, Geography 1, 2, 5.

Required Upper Division Courses (20 units): At least five courses from Environment M109, M111, 121, 122, M132, M133, M134, M135, M137, 138, M153, M155, 160, M161, M164.

No more than 8 units may be applied toward both this minor and any other major or minor program, and at least 16 units applied toward the minor must be taken in residence at UCLA. Transfer or substitution of credit for any of the above is subject to institute approval; consult an academic adviser at the institute before enrolling in any courses for the minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Environment

Lower Division Courses

M1A-M1B-M1CW. Global Environment. (5-5-5) (Same as GE Clusters M1A-M1B-M1CW.) Course M1A is enforced requisite to M1B, which is enforced requisite to M1CW. Limited to first-year freshmen. Letter grading. **M1A-M1B.** Multidisciplinary Perspective I, II. Lecture, three hours; discussion, two hours. Human effects on Earth's ecosystem and social and technological solutions to environmental pollution and overpopulation. History and ecology in lectures; laboratory exercises included in discussions. **M1CW.** Special Topics. Seminar, three hours. Enforced requisites: course M1B, and English Composition 3 or 3H or English as a Second Language 36. Examination of specialized environmental topics such as air and water, global warming, and feeding Earth's population. Satisfies Writing II requirement.

M10. Introduction to Environmental Science. (4) (Formerly numbered 10.) (Same as Atmospheric and Oceanic Sciences M10.) Lecture, three hours; laboratory, one hour. Limited to undergraduate students. Introduction to environmental science as discipline and as way of thinking. Discussion of critical environmental issues at local and global scales. Fundamentals of physical, chemical, and biological processes important to environmental science. Laboratory exercises to augment lectures. Letter grading.

12. Sustainability and Environment. (4) Lecture, three hours; discussion, one hour. Introduction to sustainability with emphasis on environmental component, including Earth's physical, chemical, and biological processes as related to resource demands and management. Examination of application of scientific method in helping to understand and solve sustainability problems. Case studies illustrating how natural and social scientists work on environmental sustainability issues. Focus on global climate change, biodiversity, pollution, and water and energy resources presented in context of creating sustainable human society that is environmentally sound, economically viable, and socially just and equitable. Letter grading.

14. Ocean Environment. (5) Lecture, three hours. Introduction to scientific studies of oceans, with emphasis on ecosystems and environmental issues. P/NP or letter grading.

Upper Division Courses

M109. Human Impact on Biophysical Environment: What Science Has Learned. (4) (Same as Geography M109.) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Examination of history, mechanisms, and consequences of in-

teractions between humans and environment. Exploration in depth of three thematic topics (deforestation, desertification, and greenhouse gas increase and ozone depletion) and four major subjects (soil, biodiversity, water, and landforms). P/NP or letter grading.

M111. Earth and Its Environment. (4) (Same as Atmospheric and Oceanic Sciences M100.) Lecture, three hours. Overview of Earth as system of distinct, yet intimately related, physical and biological elements. Origins and characteristics of atmosphere, oceans, and land masses. Survey of history of Earth and of life on Earth, particularly in relation to evolution of physical world. Consideration of possibility of technological solutions to global environmental problems using knowledge gained during course. Letter grading.

113. Los Angeles Watershed. (4) Lecture, three hours; discussion, one hour. Overview of how varying scales of influence from atmosphere/climate, basin hydrology, runoff, sewage treatment, wetlands ecology and wetlands loss, coastal water circulation, and coastal biogeochemistry affect water resources in Los Angeles. Letter grading.

M114. Soil and Water Conservation. (4) (Same as Geography M107.) Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Systematic study of processes of and hazards posed by erosion, sedimentation, and pollution and techniques needed to conserve soil and maintain environmental quality. Scope includes agriculture, forest engineering, mining, and other rural uses of land. P/NP or letter grading.

121. Conservation of Biodiversity. (4) Lecture, three hours; discussion, two hours. Not open for credit to students with credit for Ecology and Evolutionary Biology 116. Examination of interrelation of natural biotic and human systems. Description of distribution of biodiversity and natural processes that maintain it. Critical analysis of various levels of threats and multidimensional challenges required for mitigating threats. Letter grading.

122. International Integrated Coastal Management. (4) Lecture, three hours. Coast is one of most complex and interesting environments because of interactions among several ecosystems. Coast is often densely populated, with high economic and population growth, therefore socioeconomic conflicts are common. Sewage and industrial pollution, overfishing, and poorly planned development often threaten health of environment. Integrated coastal management (ICM) offers framework for resolving conflicts in manner that allows sustainable development. Focus on how ICM is being used in U.S. and around world to solve pressing ecological and socioeconomic problems. Letter grading.

123. Coastal Ecology in Southern Thailand. (5) Lecture, three hours; fieldwork, five hours. Interrelationship between coastal and marine organisms and environmental factors, including physical, chemical, biological, and geological environment; population ecology of marine organisms; application of ecological theories to marine resource management; human impacts on marine environments; global environmental change; marine and coastal zone management and conservation. Emphasis on tropical coastal habitats and ecology of Thailand and Southeast Asia. Offered in summer only. Letter grading.

M127. Soils and Environment. (4) (Same as Ecology and Evolutionary Biology M127 and Geography M127.) Lecture, three hours; discussion, one hour; field trips. General treatment of soils and environmental implications: soil development, morphology, and worldwide distribution of soil orders; physical, chemical, hydrologic, and biological properties; water use, erosion, and pollution; management of soils as related to plant growth and distribution. P/NP or letter grading.

M130. Environmental Change. (4) (Same as Geography M131.) Lecture, three hours; reading period, one hour. Designed for juniors/seniors. Examination of natural forces producing environmental changes over past two million years. How present landscape reflects past conditions. Effects of environmental change on people. Increasing importance of human

activity in environmental modification. Focus on impact of natural and anthropogenic changes on forests. P/NP or letter grading.

131SL. Gender and Sustainability: Local-Global Connections. (5) (Formerly numbered M131SL.) Lecture, three hours; service learning, two hours. Introduction to gender and development (GAD) theories, analytical approaches, and applied case studies in context of local-global sustainability and environmental issues, with focus on knowledge, roles, relationships, needs, practices, and strategies of women vis-à-vis men. Investigation of gender and sustainability dimensions of food system, including agri-business, community-supported agriculture, farmers' markets and cooperatives, fair trade and certification, genetically engineered foods, food supplements, food safety, and nutrition, permaculture, and related student-advocated issues. Integration of variety of student-centered learning modes. Volunteering with community/community service organization required. P/NP or letter grading.

M132. Environmentalism: Past, Present, and Future. (4) (Same as Geography M115 and Urban Planning CM165.) Lecture, three hours; discussion, one hour. Exploration of history and origin of major environmental ideas, movements or countermovements they spawned, and new and changing nature of modern environmentalism. Introduction to early ideas of environment, how rise of modern sciences reshaped environmental thought, and how this was later transformed by 19th-century ideas and rise of American conservation movements. Review of politics of American environmental thought and contemporary environmental questions as they relate to broader set of questions about nature of development, sustainability, and equity in environmental debate. Exploration of issues in broad context, including global climate change, rise of pandemics, deforestation, and environmental justice impacts of war. Letter grading.

M133. Environmental Sociology. (4) (Same as Sociology M115.) Lecture, three hours; discussion, one hour. Relationship between society and environment. Analysis in detail of interrelations between social factors (such as class, race, gender, and religion) and environmental factors (such as pollution, waste disposal, sustainability, and global warming). P/NP or letter grading.

M134. Environmental Economics. (4) (Same as Economics M134A.) Lecture, three hours. Requisites: Economics 41 or Statistics 12 or 13, and Economics 101 (may be waived with consent of instructor). Introduction to major ideas in natural resources and environmental economics, with emphasis on designing incentives to protect environment. Highlights important role of using empirical data to test hypotheses about pollution's causes and consequences. P/NP or letter grading.

M135. California Sustainable Development: Economic Perspective. (4) (Same as Public Policy M149 and Urban Planning M163.) Lecture, three hours. Examination of specific environmental challenges that California faces. Microeconomic perspective used, with special emphasis on incentives of polluters to reduce their pollution and incentives of local, federal, and state government to address these issues. Focus on measurement and empirical hypothesis testing. P/NP or letter grading.

M137. Historical Geography of American Environment. (4) (Same as Geography M137.) Lecture, three hours. Designed for juniors/seniors. Study of systematic changes of natural environment in U.S. during historical time, with emphasis on interplay between and among natural factors of climate, soils, vegetation, and landforms, and human factors of settlement, economic activity, technology, and cultural traits. P/NP or letter grading.

138. Effective Methods of Social Change. (4) (Formerly numbered 188.) Lecture, three hours; discussion, two hours. Introduction to most effective methods of social change. Examination of social entrepreneurs, innovators, and visionaries. Review of traditional methods of activism and new theories of nonviolent social change. Case studies of success in restoring environment, resolving conflicts, curing dis-

eases, overcoming poverty, and addressing other problems of social injustice as well as reviewing actual strategies and methods for social change in 21st century. Challenges that nonprofit advocates and community activists face today, including strategic planning, time management, networking, negotiation, and fund-raising. P/NP or letter grading.

M153. Introduction to Sustainable Architecture and Community Planning. (4) (Same as Architecture and Urban Design CM153.) Lecture, three hours. Relationship of built environment to natural environment through whole systems approach, with focus on sustainable design of buildings and planning of communities. Emphasis on energy efficiency, renewable energy, and appropriate use of resources, including materials, water, and land. Letter grading.

M155. Energy in Modern Economy. (4) (Same as Physics M155.) Lecture, three hours. Requisites: Mathematics 3A and 3B (or 31A and 31B), Physics 1A and 1B (or 6A and 6B), Statistics 12 or 13. Examination of physics of energy, history of energy development, and role that energy plays in our economy, particularly in transportation and power grid. Prospects for decreasing availability of fossil fuels and impact of global warming on energy development. Current and potential future government and social responses to energy issues. P/NP or letter grading.

160. Topics in Environmental Economics and Policy. (4) Seminar, three hours. Requisite: Statistics 12 or 13. Examination of intersection of environmental economics and policy, with focus on testing policy-relevant environmental hypotheses using economics research approach. Invited scholars present research aimed at yielding policy-relevant results on various topics such as climate change, pollution, and transportation. P/NP or letter grading.

M161. Global Environment and World Politics. (4) (Same as Political Science M122B.) Lecture, three or four hours; discussion, one hour (when scheduled). Recommended requisite: Political Science 20. Politics and policy of major global environmental issues such as climate change, integrating law, policy, and political science perspectives. P/NP or letter grading.

M162. Land Use and Development. (4) (Same as Urban Planning M162.) Lecture, four hours. Examination of institutional and historical evolution of land use in U.S. Comparison and contrasting of how cities have evolved in different parts of U.S. and some recent trends in urbanization. Relationship of state-level land-use policies and politics and ways in which localities plan. Environmental, social, and equity aspects of different patterns of urbanization and likely trends into future. Letter grading.

163. Business and Natural Environment. (4) (Formerly numbered 188A.) Lecture, three hours. Examination of role of business in mitigating environmental degradation and incentives to be more environmentally responsive. Emphasis on corporate strategies that deliver value to shareholders while responding to environmental concerns. P/NP or letter grading.

M164. Environmental Politics and Governance. (4) (Same as Urban Planning CM160.) Lecture, three hours. Environmental planning is more than simply finding problems and fixing them. Each policy must be negotiated and implemented within multiple, complex systems of governance. Institutions and politics matter deeply. Overview of how environmental governance works in practice and how it might be improved. Letter grading.

M165. Nuclear Weapons: Critical Decisions. (4) (Same as Honors Collegium M119, Public Policy M116, and Political Science M139B.) Lecture, three hours. Examination of critical decisions regarding nuclear weapons, starting with President Roosevelt's decision to build atomic bomb and ending with current policies on containing nuclear proliferation and on avoiding nuclear catastrophe. Letter grading.

166. Leadership in Water Management. (4) Lecture, three hours; discussion, one hour. Limited to juniors/seniors. Examination of water quality and water supply issues, including interactions between scientific, technological, management, and policy issues. Invited experts, scholars, and practitioners discuss relevant is-

sues such as pollution, climate change, and water infrastructure. Emphasis on solutions involving integrated water supply and wastewater systems. Leadership development through writing instruction and negotiations and media training. P/NP or letter grading.

170. Environmental Science Colloquium. (1) Seminar, 90 minutes; one field trip. Limited to undergraduate students. Study of current topics in environmental science, including participation in weekly colloquium series and field trips. May be repeated for credit. P/NP grading.

180A. Practicum in Environmental Science. (4) Lecture, three hours; discussion, two hours. Enforced requisite: Statistics 12 or 13. Limited to Environmental Science majors who have completed 40 or more units of preparation for major courses, including statistics, and 12 or more units of upper division courses toward major or minor requirements. Examination of case studies and presentation of tools and methodologies in environmental science, building on what students have been exposed to in other courses. Letter grading.

180B-180C. Practicum in Environmental Science. (5-5) Laboratory, four hours; field trips. Enforced requisite: course 180A. Course 180B is enforced requisite to 180C. Limited to junior/senior Environmental Science majors. Investigation of various aspects of one environmental case study representing actual multidisciplinary issue. Particular emphasis on developing skills required for working as professionals in this field. Work may involve site investigations, original data collection and analysis, mapping and geographic information systems, and environmental policy and law issues. Case study to be defined and conducted with collaboration of local agency or nonprofit institution. Letter grading.

184. Basics of Satellite Oceanography. (4) Lecture, two hours; discussion, one hour; computer laboratory, three hours. Remotely sensed data collected since late 1970s provide oceanographers with large volume of information on state of surface of world ocean, including sea surface temperature measured by infrared sensors, anomalies of sea winds measured by scatterometers, and water color properties measured by optical sensors. Multidiscipline information enables comprehensive monitoring of both physical and biological properties of ecosystems in different ocean regions. P/NP or letter grading.

185A. Education for Sustainable Living Program Speaker Series. (1) (Formerly numbered 185.) Lecture, two hours. Analysis of principles of sustainability through series of lectures by world-renowned faculty members, authors, environmentalists, and progressive thinkers, with required student response papers. May be repeated for credit. P/NP grading.

185B. Education for Sustainable Living Program Action Research. (2) Lecture, two hours; fieldwork, four hours. Investigation of issues of campus sustainability, including energy efficiency, transportation, waste stream management, sustainable food practices, and more by student research teams to generate coalition of student researchers that, together with faculty members and UCLA staff, strive to make UCLA more sustainable community. May be repeated for credit. Letter grading.

185C. Education for Sustainable Living Program Action Research Leader. (3) Seminar, two hours; fieldwork, six hours. Students lead research teams to investigate issues of campus sustainability, including energy efficiency, transportation, waste stream management, sustainable food practices, and more to generate coalition of student researchers that, together with faculty members and UCLA staff, strive to make UCLA more sustainable community. May be repeated for credit. Letter grading.

186. Comparative Sustainability Practices in Local/Global Settings. (4) Fieldwork, four hours. Guided fieldwork and comparative analysis used to assess local sustainability practices and policies in diverse regional or international settings. Emphasis on comparing role of local and regional culture, geography, economic climate, and governmental policies on sustainability awareness and practices. Use of observations, interviews, and unobtrusive measures to document and an-

alyze role and influence of local/global context on sustainability behavior of individuals, small businesses, and other institutions in everyday life. Letter grading.

188. Special Courses in Environment. (4) Lecture, three hours. Departmentally sponsored experimental or temporary courses, such as those taught by visiting faculty members. May be repeated for credit with topic change. P/NP or letter grading.

193. Journal Club Seminars: Environment. (1) Seminar, one hour. Limited to undergraduate students. Discussion of readings selected from current literature of field. May be repeated for credit. P/NP grading.

199. Directed Research in Environment. (2 to 4) Tutorial, two hours. Preparation: submission of written proposal outlining study or research to be undertaken. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Progress report must be submitted to faculty mentor at end of term. Culminating paper or project required. May be repeated for credit, but only 4 units may be taken each term. Individual contract required. P/NP or letter grading.

INTEGRATIVE BIOLOGY AND PHYSIOLOGY

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Barnett A. Schlinger, Ph.D., *Chair*
Walter H. Metzner, Ph.D., *Vice Chair*
Patricia E. Phelps, *Vice Chair*

Professors

Arthur P. Arnold, Ph.D.
Gene D. Block, Ph.D., *Chancellor*
Scott H. Chandler, Ph.D.
V. Reggie Edgerton, Ph.D.
Gordon L. Fain, Ph.D.
Alan Garfinkel, Ph.D.
David L. Glanzman, Ph.D.
Fernando Gómez-Pinilla, Ph.D., *in Residence*
Alan D. Grinnell, Ph.D.
Walter H. Metzner, Ph.D.
Peter M. Narins, Ph.D.
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Dwayne D. Simmons, Ph.D.
Judith L. Smith, Ph.D.
James G. Tidball, Ph.D.

Professors Emeriti

R. James Barnard, Ph.D.
Camille Brown, Ed.D.
Bryant J. Cratty, Ed.D.
Glen H. Egstrom, Ph.D.
Gerald W. Gardner, Ph.D.
Margaret E. Haberland, Ph.D.
Valerie V. Hunt, Ed.D.
Jack F. Keogh, Ed.D.
Marjorie E. Latchaw, Ph.D.
Wayne W. Massey, Ph.D.
Ben W. Miller, Ph.D.
Allan J. Tobin, Ph.D. (*Eleanor I. Leslie Professor Emeritus of Neuroscience*)

Associate Professors

Rachelle H. Crosbie, Ph.D.

Mark A. Frye, Ph.D.
Stephanie A. White, Ph.D.

Assistant Professors

David W. Walker, Ph.D.
Xinshu Grace Xiao, Ph.D.

Adjunct Professors

Larry Faller, Ph.D.
William C. Whiting, Ph.D.

Adjunct Associate Professor

Nasser A. Farahbakhsh, Ph.D.

Scope and Objectives

The cornerstone of the physiological science curriculum is vertebrate physiology, with emphases on integrative functions. The research and educational programs focus on integrative physiology at several levels of organization from molecules to living organisms, microscopic structures to macroscopic organization, and cellular properties to organ functions. Students receive comprehensive instruction in all areas of physiological science, while elective courses reflect faculty research expertise, including developmental neurobiology, gene regulation/neural development, cellular neurobiology, molecular neurobiology, neuromuscular physiology, neuroendocrine physiology, cardiac physiology, diet and degenerative disease, auditory and visual behavior, biomechanics of rehabilitative medicine, muscle cell biology, inflammatory cell biology, vascular biology, cardiac electrophysiology, neuromotor control, and social control of neuronal plasticity.

Applicants interested in pursuing graduate study may apply directly to the interdepartmental Molecular, Cellular, and Integrative Physiology Ph.D. Program (<http://www.mcip.ucla.edu>) or the interdepartmental Neuroscience Ph.D. Program (<http://www.neuroscience.ucla.edu>).

Undergraduate Study

Physiological Science B.S.

Preparation for the Major

Life Sciences Core Curriculum

Required: Life Sciences 1, 2, 3, 4; Chemistry and Biochemistry 14A, 14B, 14BL, 14C, 14CL, and 14D, or 20A, 20B, 20L, 30A, 30AL, 30B, and 30BL; Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A; Physics 1A, 1B, 1C, 4AL, and 4BL, or 6A, 6B, and 6C, or 6AH, 6BH, and 6CH.

Each core curriculum course must be passed with a grade of C- or better, and all courses must be completed with an overall grade-point average of 2.0 or better. Students receiving a grade of D or F in two core curriculum courses, either in separate courses or repetitions of the same course, are subject to dismissal from the major.

Transfer Students

Transfer applicants to the Physiological Science major with 90 or more quarter units must complete the following introductory courses prior to admission to UCLA: one year of general biology with laboratory for majors, preferably equivalent to Life Sciences 1 and 2, one

year of calculus, one year of general chemistry with laboratory for majors, and one semester of organic chemistry with laboratory. A second semester of organic chemistry or one year of calculus-based physics is strongly recommended but not required for admission.

Transfer credit for UCLA Extension coursework and for any departmental courses is subject to prior approval by the department; consult the undergraduate counselor before enrolling in any courses for the major.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Physiological Science 107, 111A (or M180A), 111B, 111L, Chemistry and Biochemistry 153A, 153L.

A total of five upper division physiological science electives is required. Eight units of course 199 or 4 units each (8 units total) of courses 198A and 198B, for students in the departmental honors program, may be applied toward the elective requirement. The Physiological Science 111L requirement is waived for students with 8 units of credit in either 198A and 198B, or 199. One 200-level graduate course may be applied toward the elective requirement with departmental approval. Courses 189HC, 191H, 192, 193, 195, 196, and graduate courses at the 300, 400, or 500 level may not be applied toward the elective requirement.

Each required and elective course must be taken for a letter grade, and a C average must be maintained in all upper division courses taken for the major. Additionally, a grade of C– or better in each of the core courses (Physiological Science 107, 111A or M180A, 111B) is required to enroll in the next course in the series.

Honors Program

The honors program provides exceptional students with the opportunity for individual research culminating in an honors thesis. Requirements for admission include a 3.0 overall grade-point average and a 3.2 GPA in the life sciences core curriculum. After completion of all requirements and with the recommendation of the faculty adviser, the undergraduate affairs committee confers departmental honors at graduation.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degree

The Department of Integrative Biology and Physiology offers the Master of Science (M.S.) degree in Physiological Science.

Physiological Science

Lower Division Courses

3. Introduction to Human Physiology. (5) Lecture, three hours; laboratory, two hours. Not open to Physiological Science majors. Courses 3 and 5 may be taken independently, concurrently, or in either sequence. Understanding of human body, its organization from molecular to cellular to tissues and organs, and how component parts function in integrated manner to permit life as we know it. P/NP or letter grading.

5. Issues in Human Physiology: Diet and Exercise. (5) Lecture, three hours; discussion, 30 minutes; laboratory, 90 minutes. Not open to Physiological Science majors. Basic introduction to principles of human biology, with special emphasis on roles that exercise and nutrition play in health, and prevention and management of such illnesses as hypertension, diabetes, and heart disease. P/NP or letter grading.

6. The Human Machine: Physiological Processes. (4) Not open to Physiological Science majors. General introduction to human musculoskeletal, cardiovascular, and respiratory systems and their function, with special emphasis on mechanical and physiological aspects of homeostasis and environmental interaction. Application of physical principles in selected areas of biomechanics, hemodynamics, ergonomics, orthopedics, and robotics. P/NP or letter grading.

13. Introduction to Human Anatomy. (5) Lecture, four hours; laboratory, five hours. Not open to Physiological Science majors. Structural survey of human body, including skeletomuscular, nervous, circulatory, respiratory, digestive, and genitourinary systems. Laboratory includes examination of human cadaver specimens. Letter grading.

90. Introduction to Physiological Science. (2) Lecture, one hour; discussion, one hour. Limited to freshmen/sophomores. Introduction to current topics in physiological science by a team of departmental faculty members. P/NP grading.

Upper Division Courses

100. Experimental Statistics. (4) Lecture, four hours. Introduction to statistics with focus on computer simulation instead of formulas. Bootstrap and Monte Carlo methods used to analyze physiological data. P/NP or letter grading.

CM102. Basic Human Biology for Biomedical Engineers I. (4) (Same as Biomedical Engineering CM102.) Lecture, three hours; laboratory, two hours. Preparation: human molecular biology, biochemistry, and cell biology. Not open for credit to Physiological Science majors. Broad overview of basic biological activities and organization of human body in system (organ/tissue) to system basis, with particular emphasis on molecular basis. Modeling/simulation of functional aspect of biological system included. Actual demonstration of biomedical instruments, as well as visits to biomedical facilities. Concurrently scheduled with course CM204. Letter grading.

CM103. Basic Human Biology for Biomedical Engineers II. (4) (Same as Biomedical Engineering CM103.) Lecture, three hours; laboratory, two hours. Preparation: human molecular biology, biochemistry, and cell biology. Not open for credit to Physiological Science majors. Molecular-level understanding of human anatomy and physiology in selected organ systems (digestive, skin, musculoskeletal, endocrine, immune, urinary, reproductive). System-specific modeling/simulations (immune regulation, wound healing, muscle mechanics and energetics, acid-base balance, excretion). Functional basis of biomedical instrumentation (dialysis, artificial skin, pathogen detectors, ultrasound, birth-control drug delivery). Concurrently scheduled with course CM203. Letter grading.

107. Systems Anatomy. (5) Lecture, four hours; laboratory, three hours; tutorial, two hours. Requisites: Life Sciences 2, Physics 1A or 6A or 6AH. Students must receive a grade of C– or better to proceed to next course in series. Systems anatomy focused primarily on human anatomy. Topics include cardiorespi-

ratory, reproductive, nervous, and skeletomuscular systems, with introduction to biomechanical principles. Letter grading.

111A-111B. Foundations in Physiological Science. (6-6) Lecture, four hours; discussion, two hours. Letter grading. **111A.** Requisites: course 107, Chemistry 14C or 30A, Life Sciences 1, 2, 3, 4, Physics 1B or 6B or 6CH. Not open for credit to students with credit for course M180A. Students must receive grade of C– or better to proceed to next course in series. Introduction to principles of muscular and neural physiology, including factors controlling membrane excitability, neuronal circuits, sensorimotor regulation, special senses, cortical functions, and neuronal plasticity. **111B.** Requisites: course 111A or M180A, Chemistry 14C or 30B. Students must receive grade of C– or better to proceed to next course in series. Introduction to principles of systems physiology, including endocrinology, transport physiology, and cardiovascular and pulmonary physiology.

111L. Physiological Science Laboratory. (3) Laboratory, four hours. Requisites: courses 111A and 111B, with grades of C– or better. Required of Physiological Science majors. Designed to illustrate physiological principles studied in courses 111A, 111B. Letter grading.

124. Molecular Biology of Aging. (4) Lecture, three hours. Enforced requisites: Chemistry 153A, Life Sciences 1, 2, 3, 4. Discoveries of new science of aging biology, with examination of aging as plastic trait modulated by genes and physiological processes. Discussion of how these findings integrate with both nutritional modulation of lifespan and complex and profound relationship between underlying aging process and diseases of aging. Topics include dietary restriction, mitochondria, insulin/IGF signaling, and link between tumor suppression and organismal aging. Letter grading.

125. Molecular Systems Biology. (4) Lecture, three hours; discussion, one hour. Enforced requisites: Life Sciences 1, 2, 3, 4. Quantitative description of molecular systems that underlie myriad phenotypes in living cells. Topics include various -omics fields and high-throughput technologies, network biology, and synthetic biology. Introductory lectures on molecular biology, emerging bioinformatic approaches, and systems modeling integrated with discussions of their applications in disease-related research. Review of recent literature to gain overall perspectives about new science of systems biology. Letter grading.

C126. Biological Clocks. (4) Lecture, three hours; discussion, one hour. Requisites: courses 111A and 111B, or M180A and M180B. Most organisms, including humans, exhibit daily rhythms in physiology and behavior. In many cases these rhythms are generated from within organisms and are called circadian rhythms. Biological basis of these daily rhythms or circadian oscillations. Exploration of molecular, cellular, and system-level organization of these timing systems. Temporal role of these variations in maintaining homeostatic mechanisms of body and impact on nervous system. Concurrently scheduled with course C226. Letter grading.

133. Exercise Physiology. (5) Lecture, three hours; laboratory, two hours. Requisite: course 111B. Physiological responses and adaptations to acute and chronic exercise. Letter grading.

134. Advanced Exercise Endocrinology and Metabolism. (4) Lecture, four hours. Requisites: courses 111A, 111B. Effects of exercise training, physical inactivity, and aging on various hormone axes and their physiological consequences. Hormonal perturbations that occur in various disease states associated with activity levels, including diabetes, obesity, and sarcopenia. Effects of hormone therapy on physiological function. Letter grading.

135. Dynamical Systems Modeling of Physiological Processes. (5) Lecture, four hours; laboratory, two hours. Examination of art of making and evaluating dynamical models of physiological systems and of dynamical principles inherent in physiological systems. Letter grading.

136. Exercise and Cardiovascular Function. (5)

Lecture, four hours. Requisite: course 111B. Consideration of acute and chronic effects of exercise in diagnosis, prevention, and treatment of cardiovascular disorders.

C137. Growth and Adaptation in Cardiovascular System. (4)

Lecture, three hours. Requisite: course 111B. Discussion of principles of operation of cardiovascular system with systems physiology approach. Review of anatomical, biochemical, and physical principles, with examples from comparative physiology. Description of state-of-the-art cardiovascular methods of observation and experimentation, applicable to experimental animals and human subjects. Concurrently scheduled with course C237. Letter grading.

138. Neuromuscular Physiology and Adaptation. (4)

Requisites: course 111B, Chemistry 153A. Cellular responses to acute and chronic exercise and environmental states of neuromuscular system.

C144. Neural Control of Physiological Systems. (5)

Lecture, four hours. Requisite: course 111B or M180B. Role of central nervous system in control of respiration, circulation, sexual function, and bladder control. Material for each section to be developed by combination of lecture and open discussion. Concurrently scheduled with course C244.

M145. Neural Mechanisms Controlling Movement. (5)

(Same as Neuroscience M145.) Lecture, four hours. Requisite: course 111A or M180A or Neuroscience M101A. Examination of central nervous system organization required for production of complex movements such as locomotion, mastication, and swallowing. Letter grading.

146. Principles of Nervous System Development. (4)

Lecture, four hours. Requisites: courses 107 (or Neuroscience 102) and 111A (or M180A or Neuroscience M101A). Examination of construction of vertebrate nervous system as series of steps beginning with several embryonic cells and culminating as complex highly ordered system. Topics include neurulation, regionalization, neurogenesis, migration, axonal outgrowth, and synapse formation. Letter grading.

147. Neurobiology of Learning and Memory. (5)

Lecture, four hours; research demonstration, one hour. Requisite: course 111A or M180A. Changes in central nervous system that accompany learning, with emphasis on cellular mechanisms.

M148. Neuronal Signaling in Brain. (4)

(Same as Neuroscience M148.) Lecture, three hours; discussion, one hour. Requisites: courses 111A (or M180A or Neuroscience M101A), M180B (or Neuroscience M101B or Chemistry 153A). Consideration of brain function, with focus on cellular physiology and functional neuroanatomy. Topics include neuronal excitability and synaptic transmission and function of specific neuronal circuits in auditory pathway, basal ganglia, cerebellum, hippocampus, and neocortex. Letter grading.

149. Mechanisms of Major Human Diseases. (4)

Lecture, three hours. Requisites: courses 111A, 111B (111B may be taken concurrently). Integration of principles gained through basic science curriculum with presently understood mechanisms of selected human diseases. Progressive developments of these diseases presented in terms of changes in cell biology and function, and changes in regulation of intercellular interactions. Letter grading.

C150. Musculoskeletal Mechanics. (5)

Lecture, three hours. Requisite: course 111B. Introduction to biomechanical analysis of human musculoskeletal system. Examination of cinematographic, force platform, and digital computer techniques to characterize and evaluate kinematic and kinetic components of movement. Topics include biostatics, biodynamics, and modeling. Concurrently scheduled with course C250B. Letter grading.

C152. Musculoskeletal Anatomy, Physiology, and Biomechanics. (5)

Lecture, three hours. Requisite: course 111A. Anatomical, physiological, and mechanical characteristics of cartilaginous, fibrous, and bony tissues examined in normal and abnormal stress situations. Connective tissue growth processes, normal

physiology, and repair mechanisms analyzed in conjunction with musculoskeletal injuries and effects of exercise. Concurrently scheduled with course C252.

153. Dissection Anatomy. (4)

Lecture, two hours; laboratory, six hours. Requisite: course 111B. Departmental application required. Study and dissection of upper and lower extremities of human cadavers; dissection of thorax and abdomen limited to musculature and neurovascular supply.

154. Cellular Communication and Regulation of Physiological Processes. (4)

Lecture, three hours. Limited to juniors/seniors. Signal transduction concepts, with focus on role of receptors, G proteins, and intracellular messengers such as cyclic AMP and calcium. Integration of these concepts with variety of physiological processes, including stimulus-secretion coupling, vascular smooth muscle contraction, and role of growth factors in cell proliferation. Contemporary scientific research articles used as basis for material presented. Students required to present journal article for discussion. Letter grading.

155. Development and Structure of Musculoskeletal System. (4)

Requisite: course 111B. Development, histology, cell biology, and biochemistry of musculoskeletal soft tissues. Integration of knowledge of muscle and connective tissue structure and function on each of these levels to understand organization and physiological behavior of the intact system.

M158. Cell Biology. (6)

(Same as Ecology and Evolutionary Biology M158.) Lecture, three hours; laboratory, six hours. Requisites: Chemistry 14A, 14B, and 14BL, or 20A, 20B, 20L, and 30AL, Life Sciences 1, 3, 4. Cell biology of eukaryotic cells, with emphasis on correlation of structure and function at molecular, organelle, and cellular levels. Letter grading.

165. Comparative Animal Physiology. (4)

Lecture, three hours; discussion, one hour. Requisites: Life Sciences 1, 2, 3. Physiological response and function at molecular, cellular, system, and whole organism levels of variety of animals to range of environmental conditions. Major topics include neural and muscular structure and function, hormones, gas exchange, energetics, and thermoregulation. Examination of wide variety of vertebrates and invertebrates to understand how animals solve physiological challenges presented by physical environment. Letter grading.

166. Animal Physiology. (6)

Lecture, three hours; laboratory, five hours. Requisites: Chemistry 14B and 14BL, or 20B and 30AL, 153A, Life Sciences 1, 2, 3, Physics 1C and 4BL, or 6C or 6CH. Not open for credit to students with credit for Ecology and Evolutionary Biology 170 or to Physiological Science majors. Introduction to physiological principles, with emphasis on organ systems and intact organisms. Letter grading.

167. Physiology of Nutrition. (4)

Lecture, four hours. Limited to senior Physiological Science majors. Topics include physiological adaptation to starvation and physiological responses to oxidants/antioxidants, vitamins, minerals, photochemicals, and their relationship to common chronic diseases and physiology of fuel utilization during aerobic and anaerobic exercise. Letter grading.

M168. Ideas and Experiments in History of Physiology. (4)

(Same as Neurobiology M168.) Lecture, three hours. Interaction of concepts and experimental techniques in physiology from the early 19th to latter 20th centuries, including heart and circulation, hormones, nutrition and vitamins, brain, spinal cord, and peripheral nervous system, as well as development of physiology as scientific discipline. Discussion of weekly readings and presentations by students. Letter grading.

173. Anatomy and Physiology of Sense Organs. (4)

Lecture, three hours; discussion, one hour. Requisites: courses 111A, or M180A and M180B, or Molecular, Cell, and Developmental Biology M175A and M175B. Structure and function of sense organs. Adoption of quantitative and comparative approach to provide insight into evolution of sense organs in both invertebrates and vertebrates. Letter grading.

177. Neuroethology. (5)

Lecture, four hours; discussion, two hours. Requisite: course 111A or M180A. Physical properties of animal signals and physiologi-

cal mechanisms underlying their generation. Topics include classical neuroethological models: acoustic and vibration communication in vertebrates, sound localization in owls, electrosensing and electrocommunication in electric fish, and neurobiology of birdsong. Letter grading.

M180A-M180B-M180C. Neuroscience: From Molecules to Mind. (5-5-5)

(Same as Molecular, Cell, and Developmental Biology M175A-M175B-M175C, Neuroscience M101A-M101B-M101C, and Psychology M117A-M117B-M117C.) Lecture, four hours; discussion, 90 minutes. P/NP or letter grading.

M180A. Cellular and Systems Neuroscience. (5)

Lecture, four hours; discussion, 90 minutes. Requisites: Chemistry 14C or 30A (14C may be taken concurrently), Life Sciences 2, Physics 1B or 1BH or 6B or 6BH. Not open for credit to students with credit for Physiological Science 111A. For Physiological Science majors only, a grade of C- or better is required to proceed to Physiological Science 111B. Cellular neurophysiology, membrane potential, action potentials, and synaptic transmission. Sensory systems and motor system; how assemblies of neurons process complex information and control movement. P/NP or letter grading.

M180B. Molecular and Developmental Neuroscience. (5)

Lecture, four hours; discussion, 90 minutes. Requisites: course 111A or M180A (or Molecular, Cell, and Developmental Biology M175A or Neuroscience M101A or Psychology M117A) or Psychology 115, Life Sciences 3, 4. Molecular biology of channels and receptors: focus on voltage dependent channels and neurotransmitter receptors. Molecular biology of supramolecular mechanisms: synaptic transmission, axonal transport, cytoskeleton, and muscle. Classical experiments and modern molecular approaches in developmental neurobiology. P/NP or letter grading.

M180C. Behavioral and Cognitive Neuroscience. (5)

Lecture, four hours; discussion, 90 minutes. Requisite: course 111A or M180A (or Molecular, Cell, and Developmental Biology M175A or Neuroscience M101A or Psychology M117A) or Psychology 115. Neural mechanisms underlying motivation, learning, and cognition. P/NP or letter grading.

M181. Biological Bases of Psychiatric Disorders. (4)

(Same as Molecular, Cell, and Developmental Biology M181, Neuroscience M130, Psychiatry M181, and Psychology M117J.) Lecture, three hours. Requisite: course 111A or M180A (or Molecular, Cell, and Developmental Biology M175A or Neuroscience M101A or Psychology M117A) or Psychology 115. Underlying brain systems involved in psychiatric symptoms and neurological disorders, including schizophrenia, depression, bipolar disorder, obsessive/compulsive disorder. Provides basic understanding of brain dysfunctions that contribute to disorders and rationales for pharmacological treatments. P/NP or letter grading.

191. Variable Topics Research Seminars: Physiology. (1)

Seminar, one hour. Requisite: course 111A. Focused reading in single subdiscipline of physiology, with focus on critical analysis of primary research literature. Emphasis on understanding methods for research in physiology and interpretation of experimental results, and how they bear on concepts of physiology. Development of culminating paper. P/NP grading.

191H. Honors Seminars: Current Topics in Physiology. (4)

Seminar, four hours. Requisites or corequisites: courses 198A, 198B. Limited to neuroscience and physiological science honors program students. Designed for juniors/seniors and required of departmental honors students. Presentation of primary paper from physiology literature. Reading and critical evaluation of current research literature. Presentation of student laboratory research hypothesis, approach, and results in form of oral and poster presentations. Letter grading.

192. Practicum in Systems Anatomy for Undergraduate Assistants. (3)

Seminar, two hours; additional hours in laboratory setting, to be arranged. Requisite: course 107. Limited to juniors/seniors. Training and supervised practicum in systems anatomy for undergraduate assistants. Consult Undergraduate Office for further information. May not be applied

toward elective requirements and may not be repeated for credit. Departmental application required. P/NP or letter grading.

193. Research Club Seminars: Physiological Science. (1) Seminar, one hour. Limited to undergraduate students. Discussion of readings selected from current literature in field. P/NP grading.

194. Research Group Seminars: Physiological Science. (2) Seminar, two hours. Required of undergraduate students in research traineeships such as MARC and UC Leads programs. Discussion of research methods and current literature in field or of research of faculty members or students. May be repeated for credit. Letter grading.

195. Field Studies in Physiological Science. (4) Tutorial, one hour; fieldwork, eight hours. Limited to seniors. Supervised field studies in specific careers related to physiological science. May not be repeated for credit and may not be applied toward elective requirements for major. Individual contract with supervising faculty member required. P/NP grading.

196. Research Apprenticeship in Physiological Science. (2 to 4) Tutorial, three hours per week per unit. Limited to juniors/seniors. Entry-level research apprenticeship for upper division students under guidance of faculty mentor. May be repeated for credit; consult department. Individual contract required. P/NP grading.

198A. Honors Research in Physiological Science. (4) Tutorial, 12 hours. Requisites: courses 111A, 111B. Corequisite: course 193. Limited to junior/senior physiological science honors program students. Directed independent research for departmental honors with faculty member, involving definition of research topic and extensive reading and research in field of proposed honors thesis. May be repeated for credit. Individual contract required. In Progress grading (credit to be given only on completion of course 198B).

198B. Honors Research in Physiological Science. (4) Tutorial, 12 hours. Requisite: course 198A. Corequisite: course 193. Limited to junior/senior physiological science honors program students. Continued reading and research that culminate in final honors thesis. Only 4 units of course 198 or 3 units of course 199 and 1 unit of course 193 may be applied toward elective requirements for major. May be repeated for credit. Individual contract required. Letter grading.

198C. Advanced Studies for Honors Research in Physiological Science. (4) Tutorial, 12 hours. Requisite: course 198B. Corequisite: course 193. Limited to junior/senior physiological science honors program students. Additional course to provide further research opportunities for departmental honors students. Development and completion of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for credit. Individual contract required. Letter grading.

199. Directed Research or Senior Project in Physiological Science. (2 to 4) Tutorial, 12 hours. Requisites: courses 111A, 111B. Corequisite: course 193. Limited to Physiological Science majors with advanced junior standing and 3.0 grade-point average in major, or seniors. Supervised individual research under guidance of faculty mentor. Culminating paper or project required. Course application must be submitted to undergraduate affairs chair during first week of classes. Only 3 units of course 199 may be applied toward elective requirements for major. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

M200. Advanced Experimental Statistics. (4) (Same as Biostatistics M220.) Lecture, four hours. Introduction to statistics with focus on computer simulation instead of formulas. Bootstrap and Monte Carlo methods used to analyze physiological data. S/U or letter grading.

M202. Cellular Neurophysiology. (4) (Same as Neurobiology M200F and Neuroscience M202.) Lecture, three hours; discussion, two hours. Requisites: course 111A or M180A or Physics 6B, and course

166 or Molecular, Cell, and Developmental Biology 171. Advanced course in cellular physiology of neurons. Action and membrane potentials, channels and channel blockers, gates, ion pumps and neuronal homeostasis, synaptic receptors, drug-receptor interactions, transmitter release, modulation by second messengers, and sensory transduction. Letter grading.

CM203. Basic Human Biology for Biomedical Engineers II. (4) (Same as Biomedical Engineering CM203.) Lecture, three hours; laboratory, two hours. Preparation: human molecular biology, biochemistry, and cell biology. Not open for credit to Physiological Science majors. Molecular-level understanding of human anatomy and physiology in selected organ systems (digestive, skin, musculoskeletal, endocrine, immune, urinary, reproductive). System-specific modeling/simulations (immune regulation, wound healing, muscle mechanics and energetics, acid-base balance, excretion). Functional basis of biomedical instrumentation (dialysis, artificial skin, pathogen detectors, ultrasound, birth-control drug delivery). Concurrently scheduled with course CM103. Letter grading.

CM204. Basic Human Biology for Biomedical Engineers I. (4) (Same as Biomedical Engineering CM202.) Lecture, three hours; laboratory, two hours. Preparation: human molecular biology, biochemistry, and cell biology. Not open for credit to Physiological Science majors. Broad overview of basic biological activities and organization of human body in system (organ/tissue) to system basis, with particular emphasis on molecular basis. Modeling/simulation of functional aspect of biological system included. Actual demonstration of biomedical instruments, as well as visits to biomedical facilities. Concurrently scheduled with course CM102. Letter grading.

M210. Molecular and Cellular Mechanisms of Neural Integration. (5) (Same as Neuroscience M230 and Physiology M210.) Lecture, four hours; discussion, one hour. Requisite: Neuroscience M202. Introduction to mechanisms of synaptic processing. Selected problems of current interest, including regulation and modulation of transmitter release, molecular biology and physiology of receptors, cellular basis of integration in sensory perception and learning, neural nets and oscillators, and molecular events in development and sexual differentiation. Letter grading.

211. Exercise Cardiovascular Physiology. (4) Attention to cardiovascular adaptations to acute exercise as well as adaptations associated with regular exercise training.

M215. Molecular and Cellular Foundations of Physiology. (5) (Same as Molecular, Cellular, and Integrative Physiology M215.) Lecture, three hours; discussion, two hours. Application of molecular and cellular approaches to systems level questions. Basic foundation for study of major physiological systems, with emphasis on levels of organization from molecular to macroscopic. Letter grading.

C226. Biological Clocks. (4) Lecture, three hours; discussion, one hour. Requisites: courses 111A and 111B, or M180A and M180B. Most organisms, including humans, exhibit daily rhythms in physiology and behavior. In many cases these rhythms are generated from within organisms and are called circadian rhythms. Biological basis of these daily rhythms or circadian oscillations. Exploration of molecular, cellular, and system-level organization of these timing systems. Temporal role of these variations in maintaining homeostatic mechanisms of body and impact on nervous system. Concurrently scheduled with course C126. Letter grading.

M227. Neuroendocrinology of Reproduction. (4) (Same as Neurobiology M227.) Lecture, three hours; discussion, one hour. Preparation: undergraduate life sciences and chemistry courses. Structural, functional, and developmental aspects of neuroendocrine and reproductive organs, with emphases on feedback regulatory mechanisms between hypothalamic-pituitary and gonadal functions and on functional integration of neuroendocrine-reproductive axis at cellular and molecular levels. Letter grading.

235. Advanced Dynamical Systems Modeling of Physiological Processes. (5) Lecture, four hours; laboratory, two hours. Examination of art of making and evaluating dynamical models of physiological systems and of dynamical principles inherent in physiological systems. Letter grading.

C237. Growth and Adaptation in Cardiovascular System. (4) Lecture, three hours. Requisite: course 111B. Discussion of principles of operation of cardiovascular system with systems physiology approach. Review of anatomical, biochemical, and physical principles, with examples from comparative physiology. Description of state-of-the-art cardiovascular methods of observation and experimentation, applicable to experimental animals and human subjects. Concurrently scheduled with course C137. Letter grading.

241. Neural Plasticity and Repair. (4) Lecture, four hours. Preparation: basic neuroscience background. Progress in basic and clinical neuroscience provides new insight to understand mechanisms of cell repair and strategies to promote neural healing. Focus on physiological, molecular, and anatomical basis governing repair processes in brain and spinal cord and their clinical implications. Letter grading.

C244. Neural Control of Physiological Systems. (5) Lecture, four hours. Requisite: course 111B or M180B. Role of central nervous system in control of respiration, circulation, sexual function, and bladder control. Material for each section to be developed by combination of lecture and open discussion. Concurrently scheduled with course C144.

245. Neural Mechanisms Controlling Movement. (5) Lecture, four hours. Requisite: course 111A or M180A or Neuroscience M101A. Examination of central nervous system organization required for production of complex movements such as locomotion, mastication, and swallowing. Letter grading.

250A. Muscle Dynamics. (4) Lecture, four hours. Integrated study of electrical and dynamic parameters of muscle-action, including topics in length-tension and force-velocity interrelationships; critical analysis of electromyographic and digital computer techniques. Letter grading.

C250B. Musculoskeletal Mechanics. (5) Lecture, three hours. Requisites: course 107, Physics 6A. Introduction to biomechanical analysis of human musculoskeletal system. Examination of cinematographic, force platform, and digital computer techniques to characterize and evaluate kinematic and kinetic components of movement. Topics include biostatistics, dynamics, and modeling. Concurrently scheduled with course C150. Letter grading.

C252. Musculoskeletal Anatomy, Physiology, and Biomechanics. (5) Lecture, three hours. Requisite: course 111A. Anatomical, physiological, and mechanical characteristics of cartilaginous, fibrous, and bony tissues examined in normal and abnormal stress situations. Connective tissue growth processes, normal physiology, and repair mechanisms analyzed in conjunction with musculoskeletal injuries and effects of exercise. Concurrently scheduled with course C152.

M255. Seminar: Neural and Behavioral Endocrinology. (2) (Same as Neurobiology M255 and Psychology M294.) Seminar, one hour; discussion, one hour. Topics include hormonal biochemistry and pharmacology. Hypothalamic/hypophyseal interactions, both hormonal and neural. Structure and function of hypothalamus. Hormonal control of reproductive and other behaviors. Sexual differentiation of brain and behavior. Stress: hormonal, behavioral, and neural aspects. Aging of reproductive behaviors and function. Letter grading.

260. Neuromuscular Factors in Movement Regulation. (4) (Formerly numbered M260.) Lecture, four hours. Requisite: course 138. Interaction of neural and muscular factors in regulation of muscle fiber properties and importance of these properties in neural strategies of movement regulation. S/U or letter grading.

263. Neuronal Mechanisms Controlling Rhythmic Movements. (4) (Formerly numbered M263.) Lecture, four hours. Requisite: course M145. Advanced topics on brainstem mechanisms responsible for controlling cyclic and stereotypic movements such

as mastication and locomotion. Emphasis on cellular neurophysiology and interaction between neuronal networks. Introduction to primary literature and techniques used in these areas. Students expected to critically evaluate data and conclusions drawn. S/U or letter grading.

270A-270B-270C. Modern Concepts in Physiology. (4-4-4) Lecture, two hours; discussion, two hours. Study and evaluation of primary research literature. Study of foundations of modern techniques in physiology research, analysis of research design. Letter grading. **270A.** Requisite or corequisite: course 111A. Foundation for experimental study of organization and function of nervous system and cellular basis of neural action. **270B.** Requisite or corequisite: course 111B. Foundation for experimental study of musculoskeletal, cardiovascular, and respiratory systems. **270C.** Requisite or corequisite: course 111C. Foundation for experimental study of general issues and mechanisms in neuroendocrine physiology.

M272. Neuroimaging and Brain Mapping. (4) (Same as Neuroscience CM272 and Psychology M213.) Lecture, three hours. Requisites: course M202, Neuroscience M201. Theory, methods, applications, assumptions, and limitations of neuroimaging. Techniques, biological questions, and results. Brain structure, brain function, and their relationship discussed with regard to imaging. Letter grading.

M290. Seminar: Comparative Physiology. (2) (Same as Ecology and Evolutionary Biology M290.) Seminar, two and one-half hours. Discussion of specific topics in comparative physiology of animals. Topics vary from year to year, with emphasis on systems physiology, neuroethology, or behavioral physiology. S/U or letter grading.

291A-291B-291C. Seminars: Cardiovascular Function and Adaptation. (2 to 4 each) Seminar, two to four hours. Selected topics on cardiovascular function and adaptation. Students required to present two-hour seminar. Letter grading.

292. Evolution and Development of Auditory System. (2 or 4) Seminar, two hours. Discussion of specific topics related to evolution, embryology, morphogenesis, cytodifferentiation, and onset of function of auditory system, with special attention to centrifugal pathways. Emphasis on primary literature sources as well as current methodological approaches. Two-hour seminar presentation required for 2 units; seminar paper and two-hour seminar presentation required for 4 units. S/U or letter grading.

293A-293B-293C. Seminars: Musculoskeletal Function and Adaptation. (2 to 4 each) Requisites: courses 138, M260. Selected topics on muscular determinants of movement, metabolic aspects of exercise, and mechanics of connective tissue. Students required to present two-hour seminar.

294. Recent Advances in Neurophysiology. (1) Seminar, one hour. Requisite: Life Sciences 2 or undergraduate degree in science. Critical examination and discussion of recent data and publications that focus on synaptic function. Student presentations, readings, and participation in discussions required. S/U grading.

295A-295B-295C. Seminars: Cellular Neuroscience. (2 to 4 each) (Formerly numbered M295A-M295B-M295C.) Seminar, two to four hours. Requisite: course M202. Selected topics in sensory transduction, cellular integration, synaptic processing, central nervous system function, and learning. Students required to present two-hour seminar. S/U or letter grading.

296. Research Seminar: Physiological Science. (2) Review of literature, discussion of original research, and analysis of current topics in physiological science. May not be applied toward M.S. or Ph.D. course requirements. May be repeated for credit. S/U grading.

297. Seminar: Muscle Cell Biology. (2 to 4) Seminar, two hours. Selected topics in muscle cell biology. Students required to present two-hour seminar. May be repeated for credit.

298. Seminar: Nervous System Development. (1 to 2) Seminar, two hours. Selected topics in developmental neurobiology, such as neuronal migration, axonal guidance, gene expression, and synaptogenesis. Weekly primary literature student presentations. One-hour seminar presentation on assigned weekly reading required of all students; students enrolled for 2 units must also complete written analysis of additional primary literature papers. May be repeated for credit. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. In-Service Practicum for Teaching Assistants in Physiological Science. (2) Seminar, to be arranged. Required of all teaching assistants. Supervised practicum in teaching laboratory courses in physiological science; material preparation and use of teaching aids. May not be applied toward degree requirements. S/U grading.

501. Cooperative Program. (2 to 8) Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. Individual Studies for Graduate Students. (2 to 8) Tutorial, to be arranged. To enroll for letter grade, petition signed by faculty sponsor, graduate adviser, and graduate affairs committee chair must be submitted prior to end of second week of class. Eight units may be applied toward degree requirements for M.S. or Ph.D. degree, provided that students enroll in two different 4-unit 596 courses in different laboratories under supervision of different mentors. Term paper required for letter grading. S/U or letter grading.

597. Preparation for M.S. Comprehensive Examination or Ph.D. Qualifying Examinations. (2 to 16) Tutorial, to be arranged with faculty member serving as student's comprehensive examination chair or Ph.D. committee chair. May not be applied toward M.S. or Ph.D. course requirements. May be repeated as necessary. S/U grading.

598. Research for and Preparation of M.S. Thesis. (2 to 16) Tutorial, to be arranged with faculty member serving as student's thesis committee chair. May not be applied toward M.S. course requirements. May be repeated as necessary. S/U grading.

599. Research for and/or Preparation of Ph.D. Dissertation. (2 to 16) Tutorial, to be arranged. May not be applied toward Ph.D. course requirements. May be repeated as necessary. S/U grading.

INTERNATIONAL DEVELOPMENT STUDIES

*Interdepartmental Program
College of Letters and Science*

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<http://www.international.ucla.edu/idsps/ids/>

Michael F. Lofchie, Ph.D., *Chair*

Faculty Administrative Committee

Edward A. Alpers, Ph.D. (*History*)
Andrew Apter, Ph.D. (*Anthropology, History*)
César J. Ayala, Ph.D. (*Sociology*)
Jorge Bravo, Ph.D. (*Political Science*)
Judith A. Carney, Ph.D. (*Geography*)
Sondra Hale, Ph.D. (*Anthropology, Women's Studies*)
Patrick C. Heuveline, Ph.D. (*Sociology*)
Edmond Keller, Ph.D. (*Political Science*)
Nancy E. Levine, Ph.D. (*Anthropology*)
Michael F. Lofchie, Ph.D. (*Political Science*)
Susan K. McClary, Ph.D., *ex officio* (*Music, Women's Studies*)
Sule Ozler, Ph.D. (*Economics*)
Michael L. Ross, Ph.D. (*Political Science*)
Mary A. Yeager, Ph.D. (*History*)

Scope and Objectives

The International Development Studies major provides an opportunity for interdisciplinary study of the critical issues of the developing world, such as poverty, human rights, global health, civil war, economic growth, and global inequality. The curriculum is intended to familiarize students with some of the more important political, economic, social, and cultural realities of the developing regions of the world, such as Asia, Eastern Europe, Africa, the Middle East, and Latin America. The broad intellectual goal of the program is to help students understand why there are such vast socioeconomic disparities between the wealthier and poorer regions of the world and what the broader implications of these disparities are.

An understanding of these issues is indispensable for both practical and scholarly purposes. While encouraging the acquisition of theoretical and conceptual knowledge, the program is equally concerned with its practical application to global realities. The program, therefore, encourages field experience involving travel, study, and/or work in regions in the developing world.

Undergraduate Study

International Development Studies B.A.

Admission

Admission to the International Development Studies major is by application only. To be eligible to apply, students must have first completed all nonlanguage preparation courses and the foreign language courses through at least level 3 (elementary level). Any remaining language courses may be completed after students have been accepted to the major. Each preparation for the major course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better.

The application period is once per year, and students must apply no later than the end of Fall Quarter of their junior year. Meeting the above minimums does not guarantee admission to the program. Admission is on a competitive basis, using the above qualifications as minimum standards for consideration.

International Development Studies Premajor

Incoming freshman and transfer students may be admitted as International Development Studies premajors on acceptance to UCLA. Premajor students must apply for major standing at the end of Fall Quarter of their junior year.

Preparation for the Major

Required: (1) Two courses from Economics 1, 2, Geography 4; (2) one statistics course from Economics 41, Political Science 6, 6R, Statistics 10, or 12; (3) three social sciences/area studies courses, each from a different category, selected from (a) Anthropology 9, (b) Geography 3, 5, 6, (c) Global Studies 1, (d) History 8A, 8B, 8C, 9A, 9D, 9E, 10B, 10BW, 11B, 22, Latin American Studies 97A, Southeast Asian Studies 1, (e) Political Science 20, 50, 50R, (f) Sociology 1, (g) Women's Studies 10; and (4) demonstrated proficiency in one modern foreign language equivalent to level 6 at UCLA. Each course must be taken for a letter grade.

Transfer Students

Transfer applicants to the International Development Studies premajor with 90 or more units must complete the following introductory courses prior to admission to UCLA: two introductory macroeconomics, microeconomics, and/or economic geography courses; one statistics course; three courses, each from a separate category, selected from sociocultural anthropology, cultural or economic geography, cultural area studies, world history, comparative politics, and introductory sociology; and demonstrated proficiency equivalent to level 3 at UCLA in one modern foreign language. Transfer students must apply for the major by the end of Fall Quarter of their junior year.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Each course must be taken for a letter grade. Students must earn a grade of C or better in International Development Studies 100A, M100B, and 150; no more than one of these three courses may be repeated. All three core courses must be taken prior to the senior seminar 191 course.

Required: (1) International Development Studies 100A, M100B, 150, 191; (2) one *research methodology* course from Anthropology 131, 139, M186, Asian American Studies 103, 104A, 105, M108, 142A, 142D, 187A, 191A, Chicana and Chicano Studies M112, M119, 123, 129, Economics 103, Education C126, Geography 163, Honors Collegium M150, Human Complex Systems M130, Information Studies 110, M111C, Management M118A, Political Science 170A, Sociology 106A, 110, 113, Statistics 112, Urban Planning M122, Women's Studies 110A; (3) three *social and critical theory* courses, each from a different department, from Anthropology 130, 150, 152, 153P, 161, 167, Economics 111, 112, Environment M132, M133, M161,

Geography 110, M115, 121, M128, 132, 133, 140, 142, 148, 155, 157, Political Science 118, 122A, M122B, 124A, 167A, 167D, 168, Sociology 101, M115, 116, 182, 183, 184, 191D, Urban Planning 121, CM166, Women's Studies 168; (4) two *regional* courses, either from the same or separate developing regions of the world (East Asia and East Central Asia, Eastern Europe and West Central Asia, Latin America and Caribbean Basin, Middle East and North Africa, South and Southeast Asia and Pacific Islands, Sub-Saharan Africa) and one disciplinary elective listed below:

East Asia and East Central Asia: Anthropology 175Q, 175T, 175V, Asian American Studies 171A, 171C, Chinese 152, Communication Studies 183, 184, Geography 186, History 169B, 170B, M170C, 170D, Korean 151, 155, 180B, 180C, Political Science 135, 159A, 159B, Sociology 179, 181, Women's Studies M170C

Eastern Europe and West Central Asia: Anthropology 175R, Central and East European Studies 126, Czech 155, History 107C, 107E, 120A through 120D, 127B, 127C, Political Science 128B, 156A through 156D, Romanian 152, Russian 120, 121, 122, 125, 126, M127, 131, Serbian/Croatian 154, Slavic 125, Women's Studies M127

Latin America and Caribbean Basin: Afro-American Studies M154C, M178, Anthropology 173Q, 174P, Art History 110G, C110H, Chicana and Chicano Studies M125, M126, M144, M147, Community Health Sciences 132, Geography 114, 181, 182A, 182B, History 157B, 159, 160A, 160B, 162A, 162B, 162C, Honors Collegium M145, Political Science 124C, 131, 154A, 154B, M154C, Portuguese 141, Sociology M178, 186, Women's Studies M144, M147C

Middle East and North Africa: Anthropology M171P, 176, Geography 187, History 105C, M108C, 111C, Honors Collegium M157, Political Science 132A, M132B, 157, 165

South and Southeast Asia and Pacific Islands: Anthropology 175U, 177, Asian American Studies 122A, 122B, M164, M171D, 171E, M173, Geography 185, History M144C, 174B, 174C, 175A, 175C, 176B, 176C, 176E, 177A, 177B, Political Science 158, Southeast Asian 135, 157, Vietnamese M155, 180B, Women's Studies M164A

Sub-Saharan Africa: African Languages 170, 171, 172, Anthropology 171, Art History 118C, C119C, C119D, Comparative Literature 169, Geography 122, 135, History 164B through 164E, 166B, 166C, 167A, 167B, 167C, 168B, Political Science 133, 151A, 151B, 151C

Disciplinary Electives: Anthropology 153, M154Q, M155Q, M158Q, M168, Comparative Literature C173, Economics 121, 122, 137, 150, 151, Education M108, Environment 122, 138, 186, Film and Television 106C, 112, Geography M109, 147, M153, 159C, History 131A, Honors Collegium M152, Nursing M158, Political Science 116A, 123A, 126, 137A, 137B, Sociology 154, M175, 191F, Women's Studies M154Q, M155Q, World Arts and Cultures 100A, 144

Honors Program

Majors who have completed International Development Studies 100A, M100B, and 150 and who have a 3.5 grade-point average in all courses offered for the major are eligible to formally apply for the honors program. In addition to completing all courses required for the major, students must take courses 198A, 198B, and 198C, in which they research, write, and present an honors thesis. To receive honors at graduation, students must have at least a 3.5 GPA in courses applied toward the major (including 198A, 198B, 198C) and an overall GPA of 3.0.

Highest honors are awarded to students who complete the major (including courses 198A, 198B, 198C) with a 3.75 GPA and who produce an exceptional thesis.

International Development Studies

Upper Division Courses

100A. Introduction to Development Studies: Economic Development and Culture Change. (4) Lecture, three hours; discussion, one hour (when scheduled). Preparation: some beginning experience in social sciences at college level. Designed for juniors/seniors. Broad historical and theoretical introduction to liberal and Marxist traditions in development studies, with focus on state, market, culture, ideology, and politics of professional knowledge. Balance of general trends and positions with selected case studies in developing nations. Letter grading.

M100B. Introduction to Development Studies: Political Economy of Development. (4) (Same as Political Science M167C.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for International Development Studies majors. Political economy approach to puzzle of why some countries are rich and others are poor and why, among latter, some have been able to achieve rapid rates of economic growth and others have not. Explanation and review of logic behind most important arguments that have been advanced to account for differences across countries in rates and levels of economic development. Letter grading.

150. Economics of Developing Countries. (4) Lecture, three hours; discussion, one hour. Requisites: Economics 1 or 2, and one elementary statistics course. Economic analysis of developing countries. Issues underlying causes of underdevelopment and process of development. Topics include population growth, poverty, inequality, inflation, fiscal and monetary policy, and alternative development strategies. Letter grading.

188. Special Courses in International Development Studies. (4) Seminar, three hours. Program-sponsored experimental or temporary courses on selected contemporary topics in international development taught by visiting instructors or affiliated faculty members. May be repeated for credit with topic change. P/NP or letter grading.

191. Variable Topics Research Seminars: International Development Studies—Senior Seminar. (4) Seminar, three hours. Enforced requisites: courses 100A, M100B, 150. Limited to senior International Development Studies majors. Organized on topics basis with readings, discussions, papers. May not be repeated for credit. Letter grading.

192. Undergraduate Practicum in International Development Studies. (2) Seminar, two hours; practicum, to be arranged. Limited to juniors/seniors. Training and supervised practicum for advanced undergraduate students to serve as undergraduate course

assistants in international development studies courses. Students assist in preparation and presentation of materials and development of innovative programs with guidance of faculty members. Consult academic counselor for further information. May not be applied toward major requirements. May be repeated for credit. P/NP grading.

198A-198B-198C. Honors Research in International Development Studies. (4-4-4) Tutorial, to be arranged. Preparation: 3.5 grade-point average in courses for major, formal application to honors program. Enforced requisites: courses 100A, M100B. Limited to junior/senior International Development Studies majors. May be repeated for credit. Individual contract required. **198A.** Research, discussion, and planning of honors thesis under direct supervision of faculty member. Letter grading. **198B.** Enforced requisite: course 198A. Research, discussion, and planning of honors thesis under direct supervision of faculty member. In Progress grading. **198C.** Enforced requisite: course 198B. Final drafting and submission of honors thesis under direct supervision of faculty member. Letter grading.

199. Directed Research in International Development Studies. (4) Tutorial, to be arranged. Limited to junior/senior International Development Studies majors. Supervised intensive directed research program in which students conduct interdisciplinary research under guidance of faculty mentor. Culminating paper required. May be applied toward major via petition. May not be repeated. Individual contract required. Letter grading.

ISLAMIC STUDIES

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College of Letters and Science*

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Khaled M. Abou El Fadl, M.A., J.D., Ph.D.,
Chair

Faculty Administrative Committee

Khaled M. Abou El Fadl, M.A., J.D., Ph.D. (*Law*)
Asli Ü. Bâli, M.Phil., M.A., J.D., Ph.D., *Acting (Law)*
Ali Behdad, Ph.D. (*Comparative Literature, English*)
Irene A. Bierman-McKinney, Ph.D. (*Art History*)
Michael D. Cooperson, Ph.D. (*Near Eastern
Languages and Cultures*)
Osman M. Galal, M.D., Ph.D. (*Community Health
Sciences*)
Nile S. Green, Ph.D. (*History*)
Sondra Hale, Ph.D. (*Anthropology, Women's Studies*)
Susan K. McClary, Ph.D. (*Music, Women's Studies*)
Aamir R. Mufti, Ph.D. (*Comparative Literature*)
Allen F. Roberts, Ph.D. (*French and Francophone
Studies, World Arts and Cultures*)
Susan E. Slyomovics, Ph.D. (*Anthropology, Near
Eastern Languages and Cultures*)
Dominic R. Thomas (*Comparative Literature, French
and Francophone Studies, Italian*)

Scope and Objectives

The Islamic Studies Interdepartmental Program encompasses the broadest cultural concerns in the study of Muslim societies of the past and present. It provides opportunities for study of the major cultures, languages, literatures, legal theories, medical systems, artistic practices,

and religious traditions of the populations of regions where Islam has had, or continues to have, the greatest impact. Within a broad interdisciplinary framework of the humanities, social sciences, and professional schools (e.g., law, public health, the arts), students are expected to acquire knowledge of several different aspects of Muslim societies and to develop skills in cultural analysis, out of which they construct individualized curricula that prepare them to carry out original research.

The Master of Arts and Ph.D. degrees in Islamic Studies are designed primarily for students pursuing academic careers. The degree programs also prove useful for students who plan to live or work in predominantly Muslim areas or those whose careers may be enhanced by a knowledge of Muslim people, languages, and institutions.

The undergraduate major in this discipline is called Middle Eastern and North African Studies. For details, see the program by that name later in this section.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Islamic Studies Program offers Master of Arts (M.A.), Candidate in Philosophy (C.Phil.), and Doctor of Philosophy (Ph.D.) degrees in Islamic Studies. A concurrent degree program (Islamic Studies M.A./Public Health M.P.H.) is also offered.

Islamic Studies

Graduate Course

200. Introduction to Islamic Studies. (4) Seminar, three hours. Introduction to various disciplines and methods employed in study of Islamic histories, cultures, and societies, with special emphasis on methodologies and current theories and how they may be used and combined by Islamic studies students. Content varies each year. Letter grading.

ITALIAN

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Dominic R. Thomas, Ph.D., *Chair*

Professors

Michael J.B. Allen, Ph.D., D.Litt.

Luigi Ballerini, Dottore in Lettere
Remo Bodei, Diploma di Perfezionamento, *in
Residence*
Massimo Ciavolella, Ph.D. (*Franklin D. Murphy
Professor of Italian Renaissance Studies*)
Thomas J. Harrison, Ph.D.
Lucia Re, Ph.D., Dottore in Lettere
Dominic R. Thomas, Ph.D.
Edward F. Tuttle, Ph.D.

Professor Emeriti

Franco Betti, Ph.D.
Marga Cottino-Jones, Ph.D., Dottore in Lettere

Lecturer S.O.E.

Elissa A. Tognozzi, Ph.D.

Lecturer

Hoang T. M. Truong, Ph.D.

Adjunct Assistant Professor

Pasqualino Marino

Scope and Objectives

Italian art and letters provide an invaluable key to understanding many facets of European civilization. Examined in its own right or studied comparatively, Italian culture offers unmatched rewards. The UCLA faculty views transmitting the Italian language as inseparable from transmission of the culture, so students consider in depth virtually all aspects of Italian civilization. After their linguistic initiation, ideally including a year abroad, students may pursue advanced studies in the department exclusively and through a wide range of interdisciplinary programs.

Bachelor of Arts degrees are offered in Italian and in Italian and Special Fields. Graduate study leads to the Master of Arts degree in Italian (with specializations in literature and language) and to the Ph.D. (literature specialization).

Undergraduate Study

Italian B.A.

The program of studies leading to the Bachelor of Arts in Italian consists of two distinct phases: preparation in the language and study of the literature and culture. While literature courses constitute the bulk of the program, good knowledge of the language is requisite to most upper division literature courses credited toward the major in Italian. The uniqueness of Italian is stressed at all levels of study. Detailed information on programs and specific degree requirements is available from the department.

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 6, and one course from 42A, 42B, 46.

Transfer Students

Transfer applicants to the Italian major with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of Italian and one Italian civilization or culture course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Thirteen upper division Italian courses, including 100, 103A, 103B, 113, 114A or 114B, 116A or 116B, 180; one course from 118 or 119; one course from 120 or 121; four courses from 114A through 191. One upper division elective course in a field relevant to Italian studies from outside the department may be substituted with consent of the undergraduate adviser.

Majors who select courses taught in English must do additional work from the original Italian texts in consultation with the course instructor.

Italian and Special Fields B.A.

Students with special interests or professional goals may select the Italian and Special Fields major, with coursework divided between Italian and a collateral field. Study programs fulfilling requirements for the major have been developed with the departments and programs listed below.

Majors who select courses taught in English must do additional work from the original Italian texts in consultation with the course instructor.

Transfer Students

Transfer applicants to the Italian and Special Fields major with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of Italian and related courses in civilization, culture, history, linguistics, literature, and closely related languages.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

Anthropology Field

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 6, and one course from 42A, 42B, 46, 50A, 50B; Anthropology 8 or 9, and 33.

The Major

Required: Italian 100, 103A or 103B, 180, 195, and three courses from 113 through 191 selected in consultation with the undergraduate adviser; five courses from Anthropology 111, 112, M115A, M115B, C115R, 130, 133Q, 135A, 135B, 135C, 135S, 135T, 139, M140, 141, 143, 150 through M154Q, 161, 182, 183 selected in consultation with the undergraduate adviser.

Art History Field

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 6, and one course from 42A, 42B, 46; Art History 50 or 51, 54, 57.

The Major

Required: Italian 100, 103A or 103B, 195, and four courses from 113 through 191 selected in consultation with the undergraduate adviser; six courses from Art History M102F, M102G, M102H, 105A through 105D, 105F, 106A through 106D, C109A, 109C, 110A, 110B,

110F, 127, 150D selected in consultation with the undergraduate adviser.

Classics Field

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 6, and one course from 42A, 42B, 46, 50A, 50B; Classics 10 or 20, 40W or 41W, and Greek 1, 2, 3 or Latin 1, 2, 3, or equivalent.

The Major

Required: Italian 100, 103A or 103B, 180, 195, and two courses from 113 through 191 selected in consultation with the undergraduate adviser; Greek 100 or Latin 100, one course from Classics 141 through 197, and one course from Greek 101A through 133 or Latin 101 through 133 (graduate seminars may be substituted for upper division author courses) selected in consultation with the undergraduate adviser.

English Field

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 6, and one course from 42A, 42B, 46, 50A, 50B; English Composition 3, English 4W, 10A, 10B, 10C.

The Major

Required: Italian 100, 103A or 103B, 195, and four courses from 113 through 191 selected in consultation with the undergraduate adviser; four courses from English 100, M101A through 119, 121, 140A through 182C selected in consultation with the undergraduate adviser.

Film and Television Field

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 6, 46.

The Major

Required: Italian 100, 103A or 103B, 121, 195, and three courses from 113 through 191 selected in consultation with the undergraduate adviser; six courses from Film and Television 106A, 106B, 106C, 107, 108, 110A, 110C, 112 through 116, 193A selected in consultation with the undergraduate adviser.

French Field

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 6, and one course from 42A, 42B, 46; French 1, 2, 3, 4, 5, 6, 12 or 14.

The Major

Required: Italian 100, 103A or 103B, 195, and four courses from 113 through 191 selected in consultation with the undergraduate adviser; one course from French 114A, 114B, 114C, and three courses from 115 through 142 selected in consultation with the undergraduate adviser.

History Field

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 6, and one course from 42A, 42B, 46; one course from History 1A, 1B, 1C, 88.

The Major

Required: Italian 100, 103A or 103B, 180, 195, and three courses from 113 through 191 selected in consultation with the undergraduate adviser; six courses from History 100, 102, 119A through 119D, 121A through 123B, 128A, 128B, 131A through M133B selected in consultation with the undergraduate adviser.

Linguistics Field

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 6, Linguistics 20, and six terms of a second Romance language or Latin or equivalent.

The Major

Required: Italian 100, 103A or 103B, 180, 195, and two courses from 113 through 191 selected in consultation with the undergraduate adviser; Linguistics 103, 110, 120A, 120B, and one course from M146, M150, 165A, 165B, 170 selected in consultation with the undergraduate adviser.

Music History Field

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 6, Music History 2A, 2B, 26A, 26B, 26C. *Recommended:* Music 20A, 20B, 20C.

The Major

Required: Italian 100, 103A or 103B, 195, and four courses from 113 through 191 selected in consultation with the undergraduate adviser; five courses from Music History 126A, 126B, 126C, 135A, 135B, 135C, 191A through 191G selected in consultation with the undergraduate adviser.

Philosophy Field

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 6, and one course from 42A, 42B, 46, 50A, 50B; one course from Philosophy 1 through 31.

The Major

Required: Italian 100, 103A or 103B, 195, and four courses from 113 through 191 selected in consultation with the undergraduate adviser; Philosophy 100A, 100B, 100C, and three courses from M101A through 185 selected in consultation with the undergraduate adviser.

Political Science Field

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 6, and one course from 42A, 42B, 46, 50A, 50B; Political Science 10, 20.

The Major

Required: Italian 100, 103A or 103B, 195, and four courses from 113 through 191 selected in consultation with the undergraduate adviser; six courses from Political Science M111A through 113A, 116A through 119, 137A, 137B, 139, 153A, 155, 167A selected in consultation with the undergraduate adviser.

Portuguese Field

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 6, and one course from 42A, 42B, 46, 50A, 50B; Portuguese 1, 2, 3, 25, M42 or M44 or 46.

The Major

Required: Italian 100, 103A or 103B, 180, 195, and three courses from 113 through 191 selected in consultation with the undergraduate adviser; three courses from Portuguese 120A through 191 selected in consultation with the undergraduate adviser.

Spanish Field

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 6, and one course from 42A, 42B, 46, 50A, 50B; Spanish 1, 2, 3, 4, 5, 25 (or equivalent as determined by placement test), M42 or M44.

The Major

Required: Italian 100, 103A or 103B, 180, 195, and three courses from 113 through 191 selected in consultation with the undergraduate adviser; one course from Spanish 120A or 120B and three courses from 122 through 161 selected in consultation with the undergraduate adviser.

Theater Field

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 6, and one course from 42A, 42B, 46, 50A, 50B.

The Major

Required: Italian 100, 103A or 103B, 122, 195, and three courses from 113 through 191 selected in consultation with the undergraduate adviser; one course from Theater 101A, 101B, 101C and five courses from 105, 111A, Classics 143A, English 142A, 142B, 142C, 168 selected in consultation with the undergraduate adviser.

Women's Studies Field

Preparation for the Major

Required: Italian 1, 2, 3, 4, 5, 6, and one course from 42A, 42B, 46; Women's Studies 10.

The Major

Required: Italian 100, 103A or 103B, M158, 195, and three courses from 113 through 191 selected in consultation with the undergraduate adviser; Women's Studies 110A or 110B, and five additional upper division courses from any of the women's studies course lists selected in consultation with the undergraduate adviser.

Study in Italy

Students are encouraged to spend up to one year in Italy either to (1) study with an education abroad program or (2) study in an Italian university. They are also urged to take advantage of summer language workshops and study programs, including UCLA's own programs in Italy and Los Angeles. For additional information, contact the Education Abroad Pro-

gram, B300 Murphy Hall, or the Summer Sessions Office, 1147 Murphy Hall.

Honors Program

Majors with an overall grade-point average of 3.25 and a 3.5 GPA or better in Italian courses are eligible to participate in the honors program. Requisites: Italian 102A, 102B, 102C.

Candidates select three upper division literature courses in which additional readings are required. In the last term of the senior year, they are required to write a thesis on a subject related to one of the three above-mentioned courses. The average for the three courses may not fall below A-. Applications should be made during the last term of the junior year.

Italian Minor

To enter the Italian minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Courses (12 units): Italian 5, 6, and one course from 42A, 42B, 46, 50A, 50B.

Required Upper Division Courses (20 units): Italian 100 and four additional Italian courses.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Italian offers Master of Arts (M.A.), Candidate in Philosophy (C.Phil.), and Doctor of Philosophy (Ph.D.) degrees in Italian.

Italian

Lower Division Courses

1. Elementary Italian—Beginning. (4) Lecture, five hours. P/NP or letter grading.

1G. Special Reading Course. (4) Readings, three hours. Open to graduate students in other fields. Preparation for Graduate Division foreign language reading requirement. S/U grading.

2. Elementary Italian—Continued. (4) Lecture, five hours. Enforced requisite: course 1. P/NP or letter grading.

2G. Special Reading Course. (4) Readings, three hours. Open to graduate students in other fields. Preparation for Graduate Division foreign language reading requirement.

3. Elementary Italian—Continued. (4) Lecture, five hours. Enforced requisite: course 2. P/NP or letter grading.

4. Intermediate Italian. (4) Lecture, five hours. Enforced requisite: course 3. P/NP or letter grading.

5. Intermediate Italian. (4) Lecture, five hours. Enforced requisite: course 4. P/NP or letter grading.

6. Intermediate Italian. (4) Lecture, three hours. Enforced requisite: course 5. Advanced grammar and composition course with readings from select literary works. P/NP or letter grading.

8A-8B-8C. Italian Conversation. (2-2-2) Seminar, three hours. Enforced requisite for course 8A: course 2; for 8B: course 3; for 8C: course 4. Each course may be repeated once for credit. P/NP or letter grading.

9. Intensive Italian. (12) Lecture, 20 hours. Intensive language program equivalent to first year of college Italian (courses 1, 2, 3) and designed to develop basic language skills. Offered in summer only. P/NP or letter grading.

42A-42B-42C. Italy through the Ages in English. (5-5-5) Lecture, four hours; discussion, one hour. P/NP or letter grading. **42A.** Holy Roman Empire to Sack of Rome. Survey of Italy's unique contribution to Western civilization in history, politics, philosophy, arts, and popular culture from time of Charlemagne to High Renaissance. **42B.** Late Renaissance to Post-modern Period. Influence and effects of baroque sculpture and architecture, Galileo, Enlightenment, unification of Italy, Fascism, terrorism, and cinema. **42C.** Food and Literature in Italy. Profile of Italian history and culture through analysis of gastronomic and literary texts. Special emphasis on late Middle Ages, Renaissance, and Risorgimento.

46. Italian Cinema and Culture in English. (5) Lecture/screenings, five hours; discussion, one hour. Special topics in Italian culture as reflected and reinforced by the nation's prime artform, stressing aesthetics and ideology of films, contemporary Italian history, and politics. Rotating topics include sex and politics, comedy, integration, family networks, and neorealism. P/NP or letter grading.

50A-50B. Masterpieces of Italian Literature in English. (5-5) Lecture, four hours; discussion, one hour. P/NP or letter grading. **50A.** Middle Ages to Baroque. Leading philosophical, religious, and sociopolitical issues in Europe, examined in authors such as St. Francis, Dante, Boccaccio, Petrarch, Lorenzo de' Medici, Machiavelli, Castiglione, Ariosto, and Tasso. **50B.** Enlightenment to Postmodernity. Comparative study of major literary texts and their adaptations into different forms of public spectacle, including theater, opera, and film. Works by Goldoni, Gozzi, Mascagni, Verga, Puccini, Pirandello, Calvino, Ortese, Zavattini, de Sica, and Taviani Brothers. Emphasis on development of ideas of spectacle.

Upper Division Courses

100. Composition and Style. (4) Lecture, three hours. Enforced requisite: course 6. Conducted in Italian. Development of writing techniques and proficiency in composition and style, with emphasis on editing for grammar and style. P/NP or letter grading.

102A-102B-102C. Italian Cultural Experience in English. (4-4-4) Lecture, three hours. Study of cultural development of Italy. P/NP or letter grading. **102A.** Roots of Western civilization; social and artistic achievements of communal society; Marco Polo, Dante, Boccaccio, Giotto, rise of Italian merchant class. **102B.** Renaissance discovery of human genius; crucial period between Machiavelli and Galileo, leading Italy and Europe to scientific revolution. **102C.** Birth of Italian nation from wars of independence to foundation of modern republic, delineated through narrative and cinema in historical context.

103A-103B-103C. Introduction to Italian Literature and Literary Analysis. (4-4-4) Lecture, three hours. Enforced requisite: course 100. Taught in Italian. Italian literature from 1150 to present, with emphasis on methods of interpreting literary form and meaning in poetry, drama, epic, and novel. P/NP or letter grading:

103A. Knights, Saints, and Lovers. (4) Lecture, three hours. Enforced requisite: course 100. Taught in Italian. Beginning with generation dominated by St. Francis, love poets of court of Frederick II to three classic writers of Italian literature: Dante, Petrarch, and Boc-

caccio. Renaissance rediscovery of human individuality, dignity, and creativity in works of Pico della Mirandola and Castiglione. P/NP or letter grading.

103B. Power and Beauty. (4) Lecture, three hours. Enforced requisite: course 100. Taught in Italian. Classics of High Renaissance in theater, epic, and lyric poetry, followed by surprising developments of baroque period, Counter-Reformation, and Enlightenment. Artists and writers include Leonardo da Vinci, Michelangelo, Machiavelli, Ariosto, Tasso, Bruno, and Vico. P/NP or letter grading.

103C. Romanticism, Politics, and Disillusionment. (4) Lecture, three hours. Enforced requisite: course 100. Taught in Italian. Great poetry and dialogues of Giacomo Leopardi; patriotic literature accompanying rise of modern Italian state; futurism, surrealism, neorealism, and postmodernism. Authors may include Foscolo, Manzoni, Verga, Pirandello, Calvino, and Dario Fo. P/NP or letter grading.

110. Dante in English. (4) Lecture, three hours. Close study of one of world's greatest literary geniuses, particularly of his masterpiece, *Divine Comedy*, the archetypal medieval journey through the afterworld. P/NP or letter grading.

113. Dante's *La Divina Commedia*. (4) Lecture, three hours. Enforced requisite: course 100. Taught in Italian. Study of medieval philosophy, religion, and politics in *La Divina Commedia*, greatest literary achievement of the age. P/NP or letter grading.

114A-114B. Middle Ages. (4-4) Lecture, three hours. Enforced requisite: course 100. Taught in Italian. P/NP or letter grading. **114A.** Tradition of Love from Sacred to Profane. Study of major love poets of all time (Dante, *Dolce Stil Novo* poets, and Petrarca) caught between courtly and religious codes. **114B.** Medieval Humor, Moralism, and Society. Novelty of Boccaccio's witty and comic masterpiece, *Decameron*, analyzed within context of moral and social codes of culture of time.

116A-116B. Italian Renaissance. (4-4) Lecture, three hours. Enforced requisite: course 100. Taught in Italian. P/NP or letter grading. **116A.** Renewal of Art and Thought. Study of *Quattrocento* and its representatives in arts and humanistic thought (i.e., Mantegna, Botticelli, Pico, Valla, and Ficino). **116B.** Power and Imagination in Renaissance. Study of artistic world of Leonardo, Raffaello, Michelangelo, Titian, and literary masterpieces of Machiavelli, Castiglione, Ariosto, Tasso, in world molded by powerful political forces, such as Roman Papacy and Medici, Gonzaga, and D'Este courts.

118. Age of Enlightenment. (4) Lecture, three hours. Enforced requisite: course 100. Taught in Italian. Study of philosophical and political prose, satiric poetry, and drama, unveiling birth of modern spirit through writings of Vico, Metastasio, Parini, and Alfieri. P/NP or letter grading.

119. Italian *Ottocento*. (4) Lecture, three hours. Enforced requisite: course 100. Taught in Italian. Study of *Ottocento*, rich period of Italian history and culture from Romanticism to decadentism when philosophical and political issues affected not only mind but also heart. Emergence of unique brand of individualism through poetry and prose writings of Foscolo, Leopardi, Manzoni, Nievo, and Verga. P/NP or letter grading.

120. Literature in 20th Century. (4) Lecture, three hours. Enforced requisite: course 100. Taught in Italian. Analysis of novel, poetry, and drama of 20th century in connection with modern thought and culture. Authors may include D'Annunzio, Pirandello, Montale, Pasolini, and Calvino. P/NP or letter grading.

121. Literature and Film. (4) Lecture, three hours. Enforced requisite: course 100. Taught in Italian. Comparative study of specific literary works and their translation into film and of different techniques in two forms of expression. Texts include literary works, screenplays, and works on literary and film theory. P/NP or letter grading.

122. Italian Theater. (4) Lecture, three hours. Enforced requisite: course 100. Taught in Italian. Study of dramatic works from Renaissance to present and their theatrical presentation. P/NP or letter grading.

123. Seminar: Interdisciplinary Italian Studies. (4) Seminar, three hours. Enforced requisite: course 100. Taught in Italian. Advanced reading, research, and writing in Italian studies with interdisciplinary approach that includes literature, art, history, and politics and emphasis on gender, politics, ethnicity, and post-colonial themes. P/NP or letter grading.

124. Food and Literature in Italy. (4) Lecture, three hours. Enforced requisite: course 100. Taught in Italian. Profile of Italian history and culture through analysis of gastronomic documents and literary texts, with special emphasis on late Middle Ages, Renaissance, and Risorgimento. Examination of relation of food and health sciences through analysis of *Regimina Sanitatis*, authored by various medical doctors of Salernitan Schools and Platina's *Il piacere onesto e la buona salute*. P/NP or letter grading.

125. Italian through Opera. (4) Lecture, three hours. Requisite: course 6. Taught in Italian. Introduction to traditional Italian opera as means of appreciating culture of Italy, art form of opera, and study of Italian language at advanced level through reading of libretti. Six masterworks of Italian opera tradition—*Il Barbiere di Siviglia*, *La Bohème*, *Pagliacci*, *Otello*, *Tosca*, and *La Traviata*—offer culturally authentic contexts to learn about operas, their characters, plots, settings, and themes. Exploration of various historical, political, and cultural issues raised in each opera. P/NP or letter grading.

131. Reading and Reciting. (4) Lecture, three hours. Enforced requisite: course 100. Taught in Italian. Emphasis on diction, interpretation, and performance of one-act plays as vehicles for perfection of pronunciation, comprehension, and fluency. P/NP or letter grading.

140. Italian Novella from Boccaccio to Basile in Translation. (4) Lecture, three hours. Analysis of development of Italian novella in its structure, historical context, and folk material. Special emphasis on how Italian novella influenced other European literatures. P/NP or letter grading.

150. Modern Fiction in Translation. (4) Lecture, three hours. Select issues in 20th-century thought traced in writers of international fame, with focus on concerns and styles of several prose works such as Umberto Eco's *The Name of the Rose*, Pasolini's *The Ragazzi*, Pirandello's *The Late Mattia Pascal*, and Calvino's *The Cosmicomics*. P/NP or letter grading.

M158. Women in Italian Culture. (4) (Same as Women's Studies M158.) Lecture, three hours; discussion, one hour. Examination of role of women in Italian society through history, politics, literature, film, and art. Italian majors required to read texts in Italian. P/NP or letter grading.

180. History of Italian Language. (4) Lecture, three hours. Enforced requisite: course 100. Taught in Italian. Main forces that have shaped literary or standard Italian and specific ways in which language has evolved. Tracing of its changing relations with other European languages and survey of effects wrought by historical events, changes in taste, and altered social functions. P/NP or letter grading.

191. Variable Topics Research Seminars: Italian Studies. (4) Seminar, three hours. Research seminar with focus on themes and issues outside uniquely Italian literature topics covered in regular departmental undergraduate courses. Reading, discussion, and development of culminating project. May be repeated once for credit. P/NP or letter grading.

195. Community or Corporate Internships in Italian. (4) Tutorial, three hours. Limited to juniors/seniors. Internship in supervised setting in community agency or business. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for credit. Individual contract with supervising faculty member required. P/NP or letter grading.

199A. Directed Research in Italian. (2 to 4) Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

199B. Directed Research in Italian and Special Fields. (2 to 4) Tutorial, to be arranged. Limited to senior Italian and Special Fields majors. Supervised individual research or investigation under guidance of faculty mentor. Tutorial in which paper (20 to 25 pages) is to be written in either Italian or English that requires students to unify and synthesize their experience of combining two disciplines of study. Individual contract required. P/NP or letter grading.

Graduate Courses

201. Bibliography and Methods of Research. (4) Lecture, three hours. S/U or letter grading.

205A-205B. Studies in Criticism. (4-4) Lecture, three hours. History, theory, and practice of criticism. S/U or letter grading. **205A.** Brief History of Literary Criticism. Presentation, discussion, and application of basic currents of criticism from stylistics to structuralism. **205B.** Discussion of Modern Critical Approaches. Presentation, discussion, and application of contemporary approaches from structuralism to deconstruction, new historicism, and feminist criticism.

210. Studies in Early Italian Literature. (4) Lecture, three hours. Topics include origins of Italian language and study of early texts, *Scuola Siciliana* and early poetry of Central and Northern Italy, and *Dolce Stil Novo*. S/U or letter grading.

214A-214F. Studies in Medieval Literature. (4 each) Lecture, three hours. S/U or letter grading:

214A. *La Divina Commedia*. (4) Lecture, three hours. S/U or letter grading.

214B. Dante's Other Works. (4) Lecture, three hours. S/U or letter grading.

214C. Petrarca's *Canzoniere*. (4) Lecture, three hours. S/U or letter grading.

214D. Boccaccio's *Decameron*. (4) Lecture, three hours. S/U or letter grading.

214E. Boccaccio's Other Works. (4) Lecture, three hours. S/U or letter grading.

214F. Variable Topics. (4) Lecture, three hours. Variable-content seminar on themes and issues of medieval literature, with coverage of authors such as St. Francis of Assisi or Jacopone de Todi. S/U or letter grading.

215A-215B. Studies in 15th-Century Literature. (4-4) Lecture, three hours. S/U or letter grading. **215A.** Variable Topics. Variable-content seminar on themes and issues of 15th-century literature, with coverage of authors such as Pulci or Poliziano. **215B.** Age of Lorenzo de' Medici and Poliziano.

216A-216E. Studies in the Renaissance. (4 each) Lecture, three hours. S/U or letter grading:

216A. Machiavelli and Renaissance Political Thought. (4) Lecture, three hours. S/U or letter grading.

216B. Ariosto and Renaissance Epic. (4) Lecture, three hours. S/U or letter grading.

216C. Tasso. (4) Lecture, three hours. S/U or letter grading.

216D. Renaissance Theater. (4) Lecture, three hours. S/U or letter grading.

216E. Variable Topics. (4) Lecture, three hours. Variable-content seminar on themes and issues of Renaissance literature, with coverage of authors such as Vasari, Leonardo, or Benvenuto. S/U or letter grading.

217. Studies in 17th-Century Literature. (4) Lecture, three hours. Topics include Galileo and birth of scientific prose, Giordano Bruno, Gian Battista Marino, and baroque poetry. S/U or letter grading.

218A-218D. Studies in 18th-Century Literature. (4 each) Lecture, three hours. S/U or letter grading:

218A. Vico. (4) Lecture, three hours. S/U or letter grading.

218B. Alfieri. (4) Lecture, three hours. S/U or letter grading.

218C. Goldoni. (4) Lecture, three hours. S/U or letter grading.

218D. Variable Topics. (4) Lecture, three hours. Variable-content seminar on themes and issues of 18th-century literature, with coverage of authors such as Vico or Ludovico. S/U or letter grading.

219A-219D. Studies in 19th-Century Literature. (4 each) Lecture, three hours. S/U or letter grading:

219A. Foscolo. (4) Lecture, three hours. S/U or letter grading.

219B. Leopardi. (4) Lecture, three hours. S/U or letter grading.

219C. Manzoni. (4) Lecture, three hours. S/U or letter grading.

219D. Variable Topics. (4) Lecture, three hours. Variable-content seminar on themes and issues of 19th-century literature, with coverage of authors such as Carducci, Tommaseo, or Nievo. S/U or letter grading.

220. Studies in Turn-of-the-Century Literature. (4) Lecture, three hours. Topics include Verga and *Verismo*, poetry, prose, and theater of D'Annunzio, and poetry of Carducci and Pascoli. S/U or letter grading.

221A-221E. Studies in 20th-Century Literature. (4 each) Lecture, three hours. S/U or letter grading:

221A. Variable Topics. (4) Lecture, three hours. Variable-content seminar on themes and issues of 20th-century literature, with coverage of authors such as D'Annunzio, Verga, Marinetti, and Pirandello. S/U or letter grading.

221B. Contemporary Poetry. (4) Lecture, three hours. Analysis of legacy of two major figures in Italian poetry from World War II—Ungaretti and Montale. Thorough examination of movements and individual poets active in the 1960s and 1970s. S/U or letter grading.

221C. 20th-Century Narrative to World War II. (4) Lecture, three hours. Assessment of turn-of-the-century narrative pattern (Gabriele D'Annunzio) and analysis of radical innovations brought about by such towering figures as Pirandello, Svevo, Bernari, Marinetti, etc. S/U or letter grading.

221D. 20th-Century Narrative since World War II. (4) Lecture, three hours. In-depth exploration of some major works that have made contemporary Italian literature famous throughout the world, with special emphasis on study of formalistic modes adopted by the neo-avant-garde. S/U or letter grading.

221E. Pirandello and Contemporary Theater. (4) Lecture, three hours. Thorough reading of theatrical texts, accompanied by analysis of how the plays have been realized on stage by important directors such as Strehler, Ronconi, and the playwrights/actors themselves. Emphasis on ritualistic implications of the theatrical performance. S/U or letter grading.

222A-222B. Comparative Romance Historical Grammar. (4-4) (Formerly numbered M222A-M222B.) Lecture, three hours. Each course may be taken independently for credit. S/U or letter grading.

222A. Phonology. Principal sound changes from late Latin to main Romance dialects. **222B.** Morphology and Syntax. Prime morpho-syntactic changes occurring between late Latin and main Romance dialects.

223. Structures of Modern Italian. (4) Lecture, three hours. Descriptive analysis of basic features of standard Italian from synchronic, typologic vantage. Topical emphasis may vary annually, but core progression departs from phonology (e.g., syllable types, prosodic patterns, phrasal phonetics), moves through morphologic constituents, passing to sentence sequences (coordination, ellipses, etc.). S/U or letter grading.

224. Italo-Romance Dialectology. (4) Lecture, three hours. Differentiation of late spoken Latin into myriad varieties spoken in Italy. Attention to discrete language types (e.g., Sardinian, Ladino, Friulan, and Franco-Provençal). Consideration of present-day sociolinguistic pressures. S/U or letter grading.

225. Cultural History of Italian Language. (4) Lecture, three hours. Historical survey of development of Italian language from medieval times to unification of country in 1861. *Questione della lingua*, general acceptance of Florentine speech, and its evolution into national language. S/U or letter grading.

230A-230B. Folk Tradition in Italian Literature. (4-4) Lecture, two hours. S/U or letter grading.

250A-250D. Seminars: Dante. (4 each) Seminar, three hours. S/U or letter grading.

251. Seminar: Petrarch. (4) Seminar, three hours. S/U or letter grading.

252. Seminar: Boccaccio. (4) Seminar, three hours. S/U or letter grading.

253A-253B-253C. Seminars: Chivalric Poetry in Italy. (4-4-4) Seminar, three hours. Relationship between genre and its French medieval sources, with study of its evolution in Italy through Pulci, Boiardo, Ariosto, and Tasso. S/U or letter grading.

254. Seminar: Machiavelli. (4) Seminar, three hours. S/U or letter grading.

255A-255B. Seminars: Baroque. (4-4) Seminar, three hours. S/U or letter grading.

256A-256B. Seminars: 18th Century. (4-4) Seminar, three hours. S/U or letter grading.

257A-257B. Seminars: Romanticism. (4-4) Seminar, three hours. S/U or letter grading.

258A-258B. Seminars: Contemporary Italian Literature. (4-4) Seminar, three hours. S/U or letter grading.

260A. Alternative Perspectives in Italian Culture: Studies of Folk Tradition in Italian Literature. (4) Lecture, three hours. Open to undergraduate students with consent of instructor. Conspicuous diversity animating Italian society articulated through class, gender, and ethnolinguistic groups to be studied across range of texts, some selected from literary canon, but others purely oral (tales, songs, proverbs, cures and curses, secular and ritual drama). S/U or letter grading.

260B. Women in Italian Culture. (4) Lecture, three hours. Designed for graduate students. Conditions of women within Italian society, with concentration on specific works produced by women and/or representing women's conditions in either medieval/Renaissance or contemporary time. S/U or letter grading.

260C. Studies in Italian Cinema. (4) Lecture, three hours. Designed for graduate students. Italian cinema compared with other European countries' and Hollywood's cinema, with focus on its development from its origins through Fascist times to neorealism, its legacy, different genres, and contemporary scene. S/U or letter grading.

M270. Seminar: Literary Theory. (5) (Same as Asian M251, Comparative Literature M294, English M270, French M270, German M270, Scandinavian M270, and Spanish M294.) Seminar, three hours. Advanced interdisciplinary seminar to explore philosophical, historical, and critical foundations of literary theory as well as current issues in literary and cultural studies. S/U or letter grading.

298. Variable Topics in Italian Studies. (4) Lecture, three hours; discussion, one hour. Designed for graduate students. Seminar focusing on themes and issues outside the uniquely Italian literature topics covered in regular departmental graduate courses.

M299. Research Resources for European Studies. (2) (Same as French M299, German M299, Information Studies M299, Slavic M299, and Spanish M299.) Lecture, two hours. Essentials of library research strategy and effective searching in key print and online resources for European and Russian studies. Through combination of lecture, online demonstration, and hands-on activities in and outside class, students understand how to efficiently use library and databases. S/U grading.

370. Problems and Methods in Teaching Italian. (4) Lecture, two hours. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495A-495B-495C. Teaching Italian at College Level. (2 to 4 each) Seminar, to be arranged. S/U grading. **495A.** Study methods in preparation for teaching Italian at college level, with emphasis on teaching proficiency-oriented instruction. May not be applied toward M.A. course requirements. **495B.** Continuation

of course 495A; study of contemporary issues in Italian language pedagogy. **495C.** Effective uses of technology in foreign language classroom. Project-based seminar in which students develop materials for classroom instruction as well as an electronic teaching portfolio.

501. Cooperative Program. (2 to 8) Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. Directed Individual Studies. (2 to 12) May be repeated twice for credit. S/U grading.

597. Preparation for M.A. Comprehensive Examination or Ph.D. Qualifying Examinations. (2 to 12) S/U grading.

599. Ph.D. Research and Writing. (2 to 12) May be repeated. S/U grading.

LABOR AND WORKPLACE STUDIES

*Interdisciplinary Minor
College of Letters and Science*

UCLA
1103E Ueberroth Building
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<http://www.labor.ucla.edu/minor/>

Frank T. Higbie, Ph.D., *Chair*

Faculty Administrative Committee

Christopher L. Erickson, Ph.D. (*Management*)
Frank T. Higbie, Ph.D. (*History*)
Sanford M. Jacoby, Ph.D. (*Management*)
Jacqueline Leavitt, Ph.D. (*Urban Planning*)
Ching Kwan Lee, Ph.D. (*Sociology*)
Karen J. Orren, Ph.D. (*Political Science*)
Christopher C. Tilly, Ph.D. (*Urban Planning*)
Abel Valenzuela, Jr., Ph.D. (*Chicana and Chicano Studies, Urban Planning*)

Scope and Objectives

The Labor and Workplace Studies minor offers an opportunity to learn about the workplace and the social, political, and economic forces that influence it. The program emphasizes the institutions of the labor market, public policy, employment relations, unions, and working-class movements. It also explores issues of race, class, and gender in the workplace. The interdisciplinary approach gives students exposure to disciplines in addition to their own majors; students should plan to take courses from multiple departments, as disciplinary breadth is encouraged.

The program is intended for students who wish to gain an in-depth understanding of the broad array of issues related to labor and the workplace. Students are encouraged to plan, with the faculty adviser and minor coordinator, either a coherent integration of courses according to a thematic or subtopical investigation or, alternatively, a comprehensive survey of the main issues involved in the study of labor and the workplace.

Undergraduate Study

Labor and Workplace Studies Minor

The Labor and Workplace Studies minor augments study in a traditional field. Students are required to complete both a departmental major and this minor. The faculty adviser certifies completion of the program.

To enter the minor, students must be in good academic standing (2.0 grade-point average or better), have completed 45 units, and file a petition and meet with the faculty adviser and minor coordinator at the Center for Labor Research and Education, 1103E Ueberroth Building, (310) 206-0812, Lsminor@irle.ucla.edu. Students are encouraged to meet early with the faculty adviser and minor coordinator to declare the minor and design a coherent program of coursework.

Required Courses (28 units minimum): Seven courses, with no more than two lower division courses (8 units), selected from Afro-American Studies M173, Asian American Studies 113, M116, Chicana and Chicano Studies M125, M127, M128, 129, Economics 150, 151, History 141B, 146A, 146B, any labor and workplace studies course, Management 180, Political Science 116A, 142C, Psychology M137E, Public Policy 141, C142, C144, 145, Sociology 157, M163, 171, 173, Women's Studies M137E, M163. Students may petition, prior to enrollment in the course, to apply other topical courses with substantial labor and workplace studies content.

A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major or minor requirements in another department or program. No more than 8 units may be applied toward both this minor and a major or minor in another department or program.

Each minor course must be taken for a letter grade, and students must have a minimum grade of C (2.0) in each and an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Labor and Workplace Studies

Lower Division Courses

M1A-M1B-M1CW. Work, Labor, and Social Justice in U.S. (5-5-5) (Same as GE Clusters M24A-M24B-M24CW.) Course M1A is enforced requisite to M1B, which is enforced requisite to M1CW. Limited to first-year freshmen. Letter grading. **M1A-M1B.** Lecture, three hours; discussion, two hours. Exploration of ways in which work has been transformed over last century, impact of this transformation on working people, and role of labor movement as force for social justice. **M1CW.** Special Topics. Seminar, three hours. Enforced requisites: course M1B, and English Composition 3 or 3H or English as a Second Language 36. Topics include labor law/history, gender, race, and workplace. Satisfies Writing II requirement.

Upper Division Courses

M116. Asian American Social Movements. (4) (Same as Asian American Studies M116.) Lecture, three hours. Designed for juniors/seniors. Examination of several dimensions of Asian American social movements, including grassroots, mass movement character, political and social vision, and social and political relevance to current issues. How movement participants linked struggle for change with own personal transformation and growth. P/NP or letter grading.

M117. Negotiation. (4) (Same as Communication Studies M117.) Lecture, four hours. Art and science of negotiation in securing agreements between independent parties. Theory and practice that underlies successful negotiation. Experiential course in which students learn broad array of negotiation skills, including identifying one's own (and others') communication style, identifying and incorporating components of successful negotiation, and resolving conflict between parties. Letter grading.

M119. Asian American and Pacific Islander Labor Issues. (4) (Same as Asian American Studies M119.) Lecture, three hours. Examination of historical and contemporary labor issues in Asian and Pacific Islander American communities, with emphasis on key role that Asian and Pacific Islander American students can play in supporting labor struggles of low-income immigrants. P/NP or letter grading.

M121. Issues in Latina/Latino Poverty. (4) (Same as Chicana and Chicano Studies M121 and Urban Planning M140.) Lecture, four hours. Examination of nature and extent of urban and rural poverty confronting Latina/Latino population in U.S. Special emphasis on antipoverty policies of government and nonprofit organizations and social planning and economic development strategies. Attention also to literature on underclass. Letter grading.

M122. Planning Issues in Latina/Latino Communities. (4) (Same as Chicana and Chicano Studies M121 and Urban Planning M171.) Lecture, four hours. Exploration of socioeconomic, demographic, and political forces that shape low-income communities and analyses of planning intervention strategies. Emphasis on community and economic development and environmental equity. Letter grading.

M123. Chicano/Latino Community Formation: Critical Perspectives and Oral Histories. (4) (Same as Chicana and Chicano Studies M119.) Lecture, four hours. Analysis of historical formation and development of Chicano/Latino communities in 20th century, with focus on labor, immigration, economic structures, electoral politics, and international dimensions. Letter grading.

M125. U.S./Mexico Relations. (4) (Same as Chicana and Chicano Studies M125.) Lecture, four hours. Examination of complex dynamics in relationship between Mexico and U.S., using political economy approach to study of asymmetrical integration between advanced industrial economies and developing countries. P/NP or letter grading.

M127. Farmworker Movements, Social Justice, and AFL-CIO. (4) (Same as Chicana and Chicano Studies M127.) Lecture, four hours. Designed for juniors/seniors. Historical and social context of farmworker organizing, including its multiracial origins and its influence on fight for equality of working women. Specific focus on organizing of United Farm Workers and Farm Laborers Organizing Committee, and their relationship to AFL-CIO, other unions, and their influence on Chicano Movement. Letter grading.

M128. Race, Gender, and U.S. Labor. (4) (Same as Chicana and Chicano Studies M128.) Lecture, four hours. Designed for juniors/seniors. Introduction to history and organization of labor movement in U.S. and North America. Discussion of race, class, and gender issues raised within movement, and various strategies for social change and economic equity pursued through organized labor and other means. Letter grading.

M144. Women's Movement in Latin America. (4) (Same as Chicana and Chicano Studies M144 and Women's Studies M144.) Lecture, four hours. Course on women's movements and feminism in Latin Ameri-

ca and Caribbean to examine diverse social movements and locations from which women have launched political and gender struggles. Discussion of forms of feminism and women's consciousness that have emerged out of indigenous rights movements, environmental struggles, labor movements, Christian-based communities, peasant and rural organizing, and new social movements that are concerned with race, sexuality, feminism, and human rights. Through comparative study of women's movements in diversity of political systems as well as national and transnational arenas, students gain understanding of historical contexts and political conditions that give rise to women's resistance, as well as major debates in field of study. P/NP or letter grading.

M149. Media: Gender, Race, Class, and Sexuality. (5) (Same as Communication Studies M149 and Women's Studies M149.) Lecture, four hours; activity, one hour. Limited to junior/senior Communication Studies and Women's Studies majors and Labor and Workplace Studies minors. Examination of manner in which media culture induces people to perceive various dominant and dominated and/or colonized groups of people. Ways in which women, gay, lesbian, bisexual, transgendered, racial, and ethnic marginalized peoples, class relations, and other subaltern or subordinated groups are presented and often misrepresented in media. Investigation and employment of practical applications of communications and feminist theories for understanding ideological nature of stereotyping and politics of representation through use of media, guest presentations, lectures, class discussions, and readings. Introduction to theory and practice of cultural studies. Letter grading.

160. Research Group or Internship Seminars: Labor and Workplace Studies. (5) Seminar, three hours. Enforced corequisite: course 195. Designed for undergraduate students who are part of research group or internship. Discussion of research methods and current literature in field or of research of faculty members or students. In-depth examination of experience of workers and role of labor movement in American society, historically and today. Topics include changing organization of work in the U.S. and reconfiguration of employment relationships; response of labor movement to managerial initiatives; way in which organized labor has handled issues of race, ethnicity, gender, and immigration status; challenges facing workers in the 21st century and ways in which organizations (unions and community-based organizations) are responding to those challenges. Letter grading.

M165. Sociology of Race and Labor. (4) (Same as Afro-American Studies M165 and Sociology M165.) Lecture, three hours; discussion, one hour. Limited to juniors/seniors. Exploration of relationship between race/ethnicity, employment, and U.S. labor movement. Analysis of underlying racial divisions in workforce and how they evolved historically. Consideration of circumstances under which workers and unions have excluded people of color from jobs and unions, as well as circumstances under which workers and unions have organized people of color into unions in efforts to improve their wages and working conditions. Impact of globalization on these dynamics. P/NP or letter grading.

M166A. Immigrant Rights, Labor, and Higher Education. (4) (Same as Asian American Studies M166A and Chicana and Chicano Studies M156A.) Seminar, three hours. New immigrant rights movement, with particular attention to labor and higher education. Overview of history of immigrant rights movement and examination of development of coalition efforts between labor movement and immigrant rights movement nationally and locally. Special focus on issue of immigrant students in higher education, challenges facing undocumented immigrant students, and legislative and policy issues that have emerged. Students conduct oral histories, family histories, research on immigration and immigrant rights, write poetry and spoken word about immigrant experience, and work to collectively develop student publication on immigrant students in higher education. P/NP or letter grading.

M166B. Research on Immigration Rights, Labor, and Higher Education. (4) (Same as Asian American Studies M166B and Chicana and Chicano Studies M156B.) Seminar, two hours. Requisite: course M166A. Expansion of research conducted by students in course M166A involving oral histories, research on immigration/labor/higher education, and evaluation of legislation and legal issues impacting undocumented students. Letter grading.

M167. Worker Center Movement: Next Wave Organizing for Justice for Immigrant Workers. (4) (Formerly numbered 167.) (Same as Afro-American Studies M167, Asian American Studies M166C, and Chicana and Chicano Studies M130.) Seminar, three hours. Development of theoretical and practical understanding of worker center movement, with focus on historical factors that have led to emergence and growth of worker centers. Role of worker centers in promoting multiethnic and multiracial campaigns for workplace and economic justice. Transnational cross-border solidarity issues and rights of undocumented workers. P/NP or letter grading.

M170. Improving Worker Health: Social Movements, Policy Debates, and Public Health. (4) (Same as Community Health Sciences CM170.) Lecture, three hours; fieldwork, two hours. Examination of intersection between work, health, and environment, analysis of social causes of health disparities, investigation of historical trends and social movements, interpretation of current policy debates, and development of innovative interventions. P/NP or letter grading.

M172. Free Speech in Workplace. (4) (Same as Communication Studies M172.) Lecture, three hours. Focus on concept of freedom of expression in workplace and how First Amendment, case law, and federal and state statutes affect one's ability to speak at work. Conflict between discrimination law and ability to speak freely at work as well as meaning and limits of academic freedom. P/NP or letter grading.

M173. Nonviolence and Social Movements. (4) (Same as Afro-American Studies M173 and Chicana and Chicano Studies M173.) Lecture, three hours; discussion, one hour. Overview of nonviolence and its impact on social movements both historically and in its present context in contemporary society, featuring lectures, conversations, films, readings, and guest speakers. Exploration of some historic contributions of civil rights struggles and role of nonviolent action throughout recent U.S. history. Examination of particular lessons of nonviolent movements as they impact social change organizing in Los Angeles. P/NP or letter grading.

M175. Agitational Communication. (4) (Same as Communication Studies M165.) Lecture, four hours; discussion, one hour (when scheduled). Theory of agitation; agitation as force for change in existing institutions and policies in democratic society. Intensive study of selected agitational movements and technique and content of their communications. Letter grading.

M176. Visual Communication and Social Advocacy. (4) (Same as Communication Studies M176.) Lecture, four hours. Visual communication reaches diverse audiences in communicating major social and political topics. Cartoons, posters, murals, and documentary photography have had powerful world impact. Survey of all four genres of visual communications as features of modern mass media. Letter grading.

M180. Southern California Regional Economy. (4) (Same as Urban Planning CM137.) Lecture, three hours. Introduction to regional economy, with emphasis on Los Angeles. Key economic sectors, labor market composition, and review of conflicting portrayals depicting dynamics of region. Two all-day bus tours of key economic regions and guest lectures by regional experts included. Letter grading.

188. Special Courses in Labor and Workplace Studies. (4) Seminar, four hours. Program-sponsored experimental or temporary courses, such as those taught by visiting faculty members. May be repeated for credit. P/NP or letter grading.

194. Research Group Seminars: Labor and Workplace Studies. (4) Seminar, 90 minutes. Designed for undergraduate students who are part of research group. Discussion of research methods and current literature in field of labor studies or of research of faculty members and/or students. May be repeated for credit. P/NP or letter grading.

195A. Community or Corporate Internships in Labor and Workplace Studies. (5) (Formerly numbered 195.) Tutorial, one hour; internship, 15 hours. Enforced corequisite: course 160. Limited to juniors/seniors. Internship in supervised setting in community agency, labor union, or other organization concerned with work and employment issues. Placements to be arranged by instructor. Students meet on regular basis with instructor and provide periodic written reports on their experience. May be repeated for credit. Individual contract with supervising faculty member required. Offered in summer only. P/NP or letter grading.

195B. Community or Corporate Internships in Labor and Workplace Studies. (2 to 5) Tutorial, to be arranged; internship, up to 15 hours. Limited to juniors/seniors. Internship in supervised setting in community agency, labor union, or other organization concerned with work and employment issues. Placements to be arranged by instructor. Students meet on regular basis with instructor and provide periodic written reports on their experience. May be repeated for credit. Individual contract with supervising faculty member required. P/NP or letter grading.

199. Directed Research in Labor and Workplace Studies. (2 to 4) Tutorial, one hour. Limited to juniors/seniors. Supervised individual research under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

LATIN AMERICAN STUDIES

*Interdepartmental Program
College of Letters and Science*

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Kevin B. Terraciano, Ph.D., *Chair*

Faculty Administrative Committee

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Stephen A. Bell, Ph.D. (*Geography*)
Charlene Villaseñor Black, Ph.D. (*Art History*)
Jorge Bravo, Ph.D. (*Political Science*)
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Robin L.H. Derby, Ph.D. (*History*)
J. Randall Johnson, Ph.D. (*Spanish and Portuguese*)
Steven J. Loza, Ph.D. (*Ethnomusicology*)
Elizabeth Marchant, Ph.D. (*Spanish and Portuguese*)
Bonnie Taub, Ph.D. (*Community Health Sciences*)
Kevin B. Terraciano, Ph.D. (*History*)
Abel Valenzuela Jr., Ph.D. (*Chicana and Chicano Studies, Urban Planning*)

Scope and Objectives

UCLA has been in the forefront of U.S. universities with significant teaching and research interests in Latin American studies for more than 50 years. More than 100 faculty members from

22 departments and professional schools regularly offer a broad range of courses with an emphasis on Latin America. These course offerings in the humanities, social sciences, fine arts, and professional fields provide students a unique opportunity to focus on Latin America, a region of growing importance.

The Latin American Studies Program offers the Bachelor of Arts and Master of Arts degrees. In the undergraduate major students develop a program combining language and methodological training with interdisciplinary studies in one of three areas: arts and humanities, social sciences, or ecology and environment. At the graduate level, students pursue more specialized coursework and interests, culminating in an interdisciplinary research study. Cooperative degree programs with the UCLA Schools of Education and Information Studies, Management, Public Health, and Public Affairs provide the opportunity to combine the M.A. in Latin American Studies with a master's degree in a professional field.

Undergraduate Study

Latin American Studies B.A.

Undergraduate studies of the Latin American region are designed to serve the needs of students (1) desiring a general education focused on the Latin American cultural region, (2) planning to enter business, government, or international agency service, (3) preparing to teach social sciences or language, and (4) preparing for advanced academic study of Latin America.

Students must complete all preparation courses with a C (2.0) in each course; the courses are applicable toward the Letters and Science lower division general education requirements.

Foreign Language Requirement

Language requirements are uniform for all students in the major regardless of core area. Proficiency in two languages equivalent to (1) Spanish 25 and Portuguese 3 or (2) Portuguese 25 and Spanish 5 is required. In lieu of Portuguese 1, 2, and 3, students may take Portuguese 102A and 102B which are designed for those with a background in Spanish. An indigenous language of Latin America (i.e., Quechua) may be substituted for the minor language.

Transfer Students

Transfer applicants to the Latin American Studies major with 90 or more units must complete the following introductory courses prior to admission to UCLA: advanced Spanish and one year of elementary Portuguese, or advanced Portuguese and intermediate Spanish, two Latin American history courses, and additional coursework in the area of concentration.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

Course Limitations

Students may not take more than 8 units of Latin American Studies 199 for letter-grade credit nor more than 8 units in any single term. No course taken on a Passed/Not Passed basis may be applied toward the B.A. degree requirements. In order to register in a 199 course, students must have advanced junior standing and an overall grade-point average of 3.0, or senior standing.

Double Majors

Through judicious use of electives, students may find it possible to obtain the B.A. degree with two majors (e.g., Latin American Studies and History). Interested students who have achieved junior standing should consult the academic counselors of both departments involved.

Core Areas for the Major

Students select one of three core areas as the focus of their major: arts and humanities, social sciences, or ecology and environment. Requirements for each core area are listed below.

Core I: Arts and Humanities**Preparation**

Required: Two courses from History 8A, 8B, 8C; Latin American Studies 97A (or 191 with department consent); Spanish and Portuguese M44; Art History 55B or Ethnomusicology 91K and World Arts and Cultures 6 or 8.

Core Area

Required: Ten upper division courses from the approved list of Latin American courses distributed as follows:

1. *Core Concentration:* Five courses as listed below in either the literature and folklore field or the linguistics field selected from Portuguese or Spanish, or in the fine arts field selected from art history or ethnomusicology. Only one course from the electives list within the arts and humanities core area may be applied toward the core concentration
2. *Theory and Methods:* One course from theory and methods within the core concentration field
3. *Internal Breadth:* Four additional courses from the arts and humanities core area but outside the core concentration field. No more than two of these may be electives

External Breadth

Required: From the approved list, six upper division courses outside the arts and humanities core area distributed as follows: at least two courses in social sciences (e.g., history) and two courses in ecology and environment (e.g., geography). The two additional courses required may be from either social sciences or ecology and environment. No more than three external breadth courses may be electives.

Approved Undergraduate Courses**(1) Literature and Folklore Field**

History 160A, Portuguese 130A, 130B, C132, C133, C134, C135, 141, Spanish 120A

through 120D, 137, 139, 140, 142, 143, 144A, 144B, 144C, 147, 149, 151B, 161, 191A, 191B, 198

Theory and Methods

Portuguese 197, Spanish 119A, 119B, 119C, 197, World Arts and Cultures 122

(2) Fine Arts Field

Art History 110F, 110G, C110H, C117A through 117E, 118A, Ethnomusicology 107, M108A, 108B, 113, M115, M131, 161K, Film and Television 106C, World Arts and Cultures 120, M125A, M125B, M125C, C139, CM140

Theory and Methods

Art History 197, Ethnomusicology 180, 183, 197E, Film and Television 199, World Arts and Cultures 199

(3) Linguistics Field

Portuguese 100A, 100B, M118A, M118B, Spanish 100A, 100B, 115, M118A, M118B, 119A, 119B, 119C, 198

Theory and Methods

Linguistics 103, 110, 120A, 120B, M146, 165A, 165B, 170, 197, Portuguese 197, Spanish 197

(4) Arts and Humanities Electives

Chicana and Chicano Studies 141, 142, Ethnomusicology M110A, M110B, Film and Television 112, Latin American Studies 191, 199, Theater M103C, World Arts and Cultures 131

Core II: Social Sciences**Preparation**

Required: Two courses from History 8A, 8B, 8C; Latin American Studies 97A (or 191 with department consent); Economics 1 and 2, or 100; Statistics 10.

Core Area

Required: Ten upper division courses from the approved list of Latin American courses distributed as follows:

1. *Core Concentration:* Five courses as listed below in one of the five fields (anthropology and sociology or economics or geography or history or political science). Only one course from the electives list within the social sciences core area may be applied toward the core concentration
2. *Theory and Methods:* One course from theory and methods within the core concentration field
3. *Internal Breadth:* Four additional courses from the social sciences core area but outside the core concentration field. No more than two of these may be electives

External Breadth

Required: From the approved list, six upper division courses outside the social sciences core area distributed as follows: at least two courses in arts and humanities (e.g., fine arts) and two courses in ecology and environment (e.g., geography). The two additional courses required may be from either arts and humanities or ecology and environment. No more than three external breadth courses may be electives.

Approved Undergraduate Courses**(1) Anthropology and Sociology Field**

Anthropology 114P, 114Q, 114R, 173Q, 174P, 179, Sociology 186

Theory and Methods

Anthropology C114S, 115P, C115R, 136Q, 139, M140, M186, 199, Sociology 112, 199

(2) Economics Field

Economics 110, 111, 112, 120, 121, 122

Theory and Methods

Economics M135, 187, 199A, Management 180

(3) History Field

History 157A, 157B, 159, 160A, 160B, 161, 162A, 162B, 162C, 191E

Theory and Methods

History 191E, 197, Information Studies M111C

(4) Political Science Field

Political Science 124C, 131, 139, 149, 154A, 154B, 169, 199

Theory and Methods

Political Science 104A, 104B, M105, 113A, 119, 137A, 137B, 168, 170A

(5) Geography Field

Geography 121, 126, M128, 133, 142, 181, 182A, 182B, 199

Theory and Methods

Geography M171

(6) Social Sciences Electives

Anthropology 153, M154Q, 161, 167, M168, Chicana and Chicano Studies 120, M124, M125, 132, 169, 172, Economics 137, Geography 108, 111, M115, 129, 140, History M151A, M151B, Latin American Studies 191, 199, Political Science M122B, 124A, 144A, 167A, 167B, 168, Sociology 116, 154, 157, 182, 184

Core III: Ecology and Environment**Preparation**

Required: Two courses from History 8A, 8B, 8C; Latin American Studies 97A; Geography 5; Statistics 10.

Core Area

Required: Ten upper division courses from the approved list of Latin American courses distributed as follows:

1. *Core Concentration:* Five courses as listed below in geography. Only one course from the electives list within the ecology and environment core area may be applied toward the core concentration
2. *Theory and Methods:* One course from theory and methods within the core concentration field
3. *Internal Breadth:* Four additional courses from the ecology and environment core area to be selected from theory and methods core courses or electives

External Breadth

Required: From the approved list, six upper division courses outside the ecology and envi-

ronment core area distributed as follows: at least two courses in arts and humanities (e.g., fine arts) and two courses in social sciences (e.g., history). The two additional courses required may be from either arts and humanities or social sciences. No more than three external breadth courses may be electives.

Approved Undergraduate Courses

Ecology and Environment

Community Health Sciences 132, Geography 121, M128, 133, 142, 181, 182A, 182B, 199

Theory and Methods

Anthropology M186, Geography M171

Electives

Anthropology 153, 167, M168, Chicana and Chicano Studies M106, Community Health Sciences 130, Economics 137, Geography 108, 111, M115, 126, M128, 129, 132, 140, Latin American Studies 191, 199, Sociology 116

Latin American Studies Minor

The interdisciplinary program leading to the Latin American Studies minor allows students to choose from a broad range of course offerings in various departments to develop professional and methodological skills with area expertise.

To enter the minor, students must have an overall grade-point average of 2.0 or better and have completed 45 units.

Required Lower Division Courses (8 units): History 8A or 8B or 8C or Latin American Studies 97A, Spanish 25 or Portuguese 25.

Required Upper Division Courses (20 units): Five courses selected from the approved list of Latin American studies courses in at least two of the following fields: (1) arts and humanities (art history, ethnomusicology, folklore, Spanish and Portuguese), (2) ecology and environment (geography, public health), (3) social sciences (anthropology, economics, history, political science, sociology). If the social sciences field is selected, at least two courses must be taken in that field. No more than 4 units of course 199 may be applied toward the minor, and at least three upper division courses (12 units) must be taken in residence at UCLA.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Latin American Studies Program offers the Master of Arts (M.A.) degree in Latin American Studies.

Three articulated degree programs (Latin American Studies M.A./Education M.Ed., Latin American Studies M.A./Library and Information Science M.L.I.S., and Latin American Studies M.A./Public Health M.P.H.) and two concurrent degree programs (Latin American Studies M.A./Management M.B.A. and Latin American Studies M.A./Urban Planning M.U.R.P.) are also offered.

Latin American Studies

Lower Division Course

97A. Introduction to Latin America. (4) Lecture, three hours. Interdisciplinary freshman/sophomore survey course designed as introduction to modern Latin America. P/NP or letter grading.

Upper Division Courses

191. Variable Topics Research Seminars: Latin American Studies. (4) Seminar, four hours. Advanced interdisciplinary research seminars for juniors/seniors. Reading, discussion, and development of culminating project. May be repeated for credit with topic change. P/NP or letter grading.

199. Special Studies in Latin American Studies. (4 or 8) Tutorial, to be arranged. Limited to juniors/seniors. Intensive directed research program in which students conduct interdisciplinary research or complete internship with international agency or program dealing with Latin America. Faculty sponsorship and written reports required. May be repeated for credit. P/NP or letter grading.

Graduate Courses

M200. Latin American Research Resources. (4) (Same as History M265 and Information Studies M225.) Seminar, three hours. General and specialized materials in fields concerned with Latin American studies. Library research techniques provide experience and competency required for future bibliographic and research sophistication as basis for enhanced research results.

205. Latin Americanist Scholarship. (4) Lecture, three hours. Panoramic introduction to methods and issues in various disciplines that study Latin America, with guest lecturers from various fields. (Latin American Studies core course.)

M250A. Indians of South America. (4) (Same as Anthropology M272.) Lecture, three hours. Survey of literature and research topics related to Indian cultures of South America. May be repeated for credit.

250B. Interdisciplinary Seminar: Latin American Studies. (4) Seminar, three hours. Problem-oriented seminar on critical areas stressed in University's cooperative programs in Latin America.

250C. Interdisciplinary Topics in Latin American Studies. (4) Reading knowledge of Spanish or Portuguese normally required. Seminar devoted to selected topics of an interdisciplinary nature.

M260. Health and Culture in Americas. (4) (Same as Anthropology M266 and Community Health Sciences M260.) Lecture, three hours. Recommended requisite: Community Health Sciences 132. Health issues throughout Americas, especially indigenous/Mestizo Latin American populations. Holistic approach covering politics, economics, history, geography, human rights, maternal/child health, culture. Letter grading.

M262. HIV/AIDS and Culture in Latin America. (4) (Same as Community Health Sciences M250.) Seminar, three hours. Exploration of cultural, political, and public health context for people living with and at risk

for HIV/AIDS and their families in Latin America. Public health aspects, including epidemiology, comorbidity concerns and community interventions, medical-anthropological study of experience of those impacted, and grass-roots responses, as well as political/economic context addressing poverty and structural violence. Letter grading.

M264. Latin America: Traditional Medicine, Shamanism, and Folk Illness. (4) (Same as Anthropology M264 and Community Health Sciences M264.) Lecture, three hours. Recommended preparation: Community Health Sciences 132, bilingual English/Spanish skills. Examination of role of traditional medicine and shamanism in Latin America and exploration of how indigenous and mestizo groups diagnose and treat folk illness and Western-defined diseases with variety of health-seeking methods. Examination of art, music, and ritual and case examples of religion and healing practices via lecture, film, and audiotape. Letter grading.

M268A-M268B. Seminars: Recent Latin American History. (4) (Same as History M268A-M268B.) Seminar, three hours. Course M268A is requisite to M268B. Reading knowledge of Spanish and Portuguese normally required. Seminar devoted to selected topics of interdisciplinary nature. In Progress (M268A) and letter (M268B) grading.

501. Cooperative Program. (2 to 8) Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. Directed Individual Study or Research. (2 to 8) Tutorial, to be arranged. May be repeated, but only 4 units may be applied toward the minimum graduate course requirement. S/U or letter grading.

597. Preparation for M.A. Comprehensive Examination. (4) Tutorial, to be arranged. Ordinarily taken only during term in which student is being examined. S/U grading.

598. Research for and Preparation of M.A. Thesis. (4) Tutorial, to be arranged. Only 4 units may be applied toward minimum graduate course requirement. S/U grading.

LAW

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 Philip R. Trimble, M.A., LL.B.
 William D. Warren, J.D., J.S.D. (*Connell Professor Emeritus of Law*)

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Julie B. Cramer, J.D.
 Steven K. Derian, M.A., J.D.
 Skye Donald, M.A., J.D.
 Susan Cordell Gillig, M.A., J.D.
 Patrick D. Goodman, M.Ed., J.D.
 Sean Hecht, J.D.
 Thomas W. Holm, J.D.
 Jason A. Light, J.D.
 Kerry A. Lyon-Grossman, J.D.
 Jyoti Nanda, J.D.
 Ezra Ross, J.D.
 Paul Wonsowicz, J.D.

Adjunct Professor

Robert Bradley Sears, J.D.

Scope and Objectives

The UCLA School of Law is designed to produce lawyers who are well-prepared for the various private and public roles that are assigned to members of the legal profession. The school pioneered clinical teaching, is a leader in interdisciplinary research and training, and is at the forefront of efforts to link research to its effects on society and the legal profession. Students do not undertake a specific major but have the opportunity to enroll in a wide variety of courses dealing with various legal fields.

The law school is unique in that it also offers students an opportunity to specialize in five specific areas of law: business law and policy; critical race studies; entertainment and media law and policy; law and philosophy; and public interest law and policy.

The school offers a three-year curriculum leading to the J.D. degree and two advanced degrees—Master of Laws (LL.M.) and Doctor of Juridical Science (S.J.D.).

Professional Study

The School of Law offers the Juris Doctor (J.D.), Doctor of Juridical Science (S.J.D.), and Master of Laws (LL.M.) degrees.

Nine concurrent degree programs (Law J.D./Afro-American Studies M.A., Law J.D./American Indian Studies M.A., Law J.D./Education M.Ed, M.A., Ed.D., or Ph.D., Law J.D./Management M.B.A., Law J.D./Philosophy Ph.D., Law J.D./Public Policy M.P.P., Law J.D./Public Health M.P.H., Law J.D./Social Welfare M.S.W., and Law J.D./Urban Planning M.U.R.P.) are also offered.

The undergraduate courses offered by the School of Law are designed for undergraduate students only. For information about the legal curriculum of the School of Law, see <http://www.law.ucla.edu/home/>.

Law, Undergraduate Upper Division Courses

156. American Political Thought Seminar. (3) Seminar, nine hours. Examination of American political thought from founding to writings of Abraham Lincoln. Readings include Locke's *Second Treatise of Government*, Declaration of Independence, *Federalist* numbers 10 and 51, and numerous writings and speeches of Lincoln, including extensive portions of Lincoln-Douglas debates. Emphasis on class discussion. Letter grading.

161. Consumer Bankruptcy Policy Seminar. (3) Seminar, 13 hours. Examination of consumer bankruptcy policy with one architect of 1978 Bankruptcy Code. Discussion of debt payment in ancient Babylon where spouses and siblings could be sold into slavery for nonpayment of relative's debt. Examination of bankruptcy in U.S. history and analysis of heart of consumer bankruptcy policy, such as when debtors should be released from debts, what property debtors should keep, and how debtors can put together repayment plans. P/NP or letter grading.

163. International Human Rights Colloquium. (3) Seminar, two hours; discussion, two hours. Alternative approaches to understanding international human rights law. Consideration of legal, political, sociological, and economic perspectives. Weekly presentations on topic by 11 leading human rights scholars from U.S. and abroad. Two-page critique of each paper presented by guest lecturers required. P/NP or letter grading.

163B. International Human Rights Colloquium. (1) Lecture, one hour. Prerequisite: course 163. Continuation of course 163. P/NP or letter grading.

170. Race and Racism in California Legal History, 1846 to the Present. (4) Seminar, 14 hours. Limited to freshmen/sophomores. Exploration of California legal history, with focus on issues of race and racism, beginning with mid-19th-century transition from Mexican Alta California to U.S. territory and statehood. Topics include state measures affecting California Indians in the 19th century, African Americans in California's 19th-century history, measures used to curtail Chinese immigration laws designed to prevent racial intermixing, Alien Land Laws aimed at Japanese residents of California, relocation of Japanese citizens after Pearl Harbor, California's response to U.S. immigrants from dust bowl during great depression, post-World War II through 1960s measures aimed at equal access to things like home ownership, employment, and rental housing, and uses of initiative in modern era. P/NP or letter grading.

173. Topics in American Constitutional History. (4) Lecture, three hours. Introduction to major themes, events, and cases in American constitutional history. U.S. Supreme Court decisions and other sources of constitutional meaning, including popular movements and expressions of constitutional principle from actors in other branches of federal government and in states. Emphasis on historical background and ideological context for particular constitutional controversies at various points in American history, with more formal analysis of particular decisions and competing methods of constitutional interpretation considered. Topics include origins of judicial review, debates over meaning of federalism in early republic, slavery and constitution, Reconstruction Amendments, laissez-faire constitutionalism, citizenship and empire, origins of civil liberties, New Deal constitutionalism, and prehistory of Brown versus Board of Education. P/NP or letter grading.

175. Seminar: Individual Rights Protected by U.S. Constitution. (3) Seminar, two hours. Limited to juniors/seniors. Broad introduction to and examination of individual rights protected under Bill of Rights and 14th Amendment to U.S. Constitution, including freedom of speech and press, religious freedom, right to privacy (including procreative rights) and due process of law, constitutional protection against discrimination based on race and gender, and basic criminal procedure protections. Emphasis on principal Supreme Court cases establishing scope of those rights and their limits. Letter grading.

180. Special Topics in Law. (4) Lecture, four hours. Topics of special interest to undergraduate students. Specific subjects may vary each term depending on particular interest of instructors or students. May be repeated for credit. P/NP or letter grading.

184. Introduction to Legal Education. (4) Lecture, four hours. Preliminary introduction to legal pedagogy and overview of American legal system. Analysis of appellate and U.S. Supreme Court cases and legislative materials to develop foundational law school skills and become familiar with principles of both scholarly and practice-oriented legal analysis. Topics include introduction to case analysis, reading cases, exploring precedent and stare decisis, separation of powers, and statutory interpretation. P/NP or letter grading.

185. Corporate Mock Trial. (4) Lecture, four hours. Introduction to basic principles of business law, such as how law applies to various business entities, duties and liabilities of corporate officers and directors, and shareholder derivative suits. American legal system and how litigation progresses from filing of complaints through trial. Students participate in mock trial at end of course. P/NP or letter grading.

187A. Legal History Colloquium. (3) Seminar, two hours. Corequisite: course 193. Reading of scholarly papers prepared by school faculty members and other scholars in fields of legal history, economics, and political science. Preparation of critiques and discussion of issues in seminar setting with author of papers. P/NP or letter grading.

187B. Politics and International Law Colloquium. (3) Seminar, two hours. Corequisite: course 193. Limited to College Honors students. Lectures on alternative theoretical approaches (including realism, institutionalism, and constructivism) to understand relationship between politics and international law. Weekly presentations on topic by 10 leading law and political science scholars from the U.S. and abroad. Reading of scholarly papers, preparation of critiques, and discussion of issues in seminar setting with authors of papers. P/NP or letter grading.

191. Variable Topics Research Seminars: Law—California Legal History. (4) Seminar, two hours. Requisite: course 170. Research project, selected in consultation with faculty member and using original and secondary materials, to be conducted, followed by major presentation of student work to class and writing of major research paper. Letter grading.

193. Journal Club Seminars: Law. (1) Seminar, one hour; discussion, two hours. Corequisite: course 187A. Adjunct course limited to undergraduate students taking law colloquium. Intensive review and follow-up of scholarly papers presented in colloquium series. Reading of legal cases and supplemental material to provide legal framework for each scholarly paper presented in colloquium. Supervised by faculty member in charge of colloquium series. May be repeated for credit. P/NP grading.

199. Directed Research in Law. (1 to 6) Tutorial, three hours per week per unit. Limited to juniors/seniors. Supervised individual research under guidance of faculty mentor. Culminating scholarly paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

LESBIAN, GAY, BISEXUAL, AND TRANSGENDER STUDIES

Interdisciplinary Minor
College of Letters and Science

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Arthur L. Little, Jr., Ph.D., *Chair*
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Robert Bradley Sears, J.D. (*Law*)

Scope and Objectives

Although lesbian, gay, bisexual, and transgender studies has only recently found a place in university curricula, the field actually represents the intersection of two traditions that have existed for thousands of years. The better known is the learned tradition, which, at least since the end of the ancient world, has been overwhelmingly hostile. Medieval theology condemned the sodomite, nineteenth-century medicine pathologized the invert, and until very recently psychiatry felt called on to “cure” the homosexual. For at least as long, however, women and men attracted to others of their own sex have kept alive another affirmative tradition, a knowledge of their past that sustained them, often in the face of overwhelming official hostility. The guests at Plato’s *Symposium* looked back to Achilles and Patroclus; women-loving-women in early twentieth-century Paris remembered Sappho.

After the birth of the modern gay liberation movement in 1969, this underground knowledge came out of the closet and found a public voice sufficiently strong to mount a sustained challenge to the official teachings concerning minority sexualities and genders. This challenge led to a dramatic increase in research on same-sex desire and cross-gender phenomena, most of it the work of scholars without academic affiliations. Inspired by these accomplishments, students and faculty at colleges and universities eventually mustered the cour-

age to address similar topics, thereby transforming—partly by assimilation, partly by contestation—the previously hostile learned tradition. This originally rather disparate work gradually coalesced into lesbian, gay, bisexual, and transgender studies, which, over the last 20 years, has developed into an academic discipline of remarkable breadth and vitality. The field embraces work in genetics and cultural studies, literature and anthropology, the health sciences, history, and the visual arts. It ranges from archival research to the elaboration of queer theory, from the analysis of constitutional law to questions of public health, from the study of identical twins to the study of popular culture.

Although the initial focus in lesbian, gay, bisexual, and transgender studies is usually on minority sexualities and genders, it is impossible to study them in any meaningful way without raising questions about sexuality and gender in general. And those questions cannot be responsibly answered without considering class, race, ethnicity, history, political economy, and the construction of scientific knowledge. Thus lesbian, gay, bisexual, and transgender studies, which may at first seem to concern the private practices of a small number of people, inevitably leads to the much larger study of sexuality, gender, and culture. It represents an important vantage point from which to investigate the social construction of gender and sexual identity, social control of behavior, changing definitions of the family, and the place of sexual and gender expression in the public and private spheres. Because of the kinds of questions asked, lesbian, gay, bisexual, and transgender studies is the site of some of the most exciting work being done today on the relation of culture, gender, and sexuality.

UCLA’s minor in Lesbian, Gay, Bisexual, and Transgender Studies provides the opportunity to study sexuality from a variety of interdisciplinary perspectives. Interdisciplinarity is assured by requiring students to take at least one course each in the life sciences, social sciences, and humanities. In addition, seniors in the minor are expected to do an internship in a community organization, thereby acquiring a kind of knowledge not usually available in the classroom. After completing the minor, students should be familiar with the theoretical tools that different disciplines employ to study sexuality and gender. They should be acquainted with some of the many different ways sexuality and gender have been organized in the past and are organized in different cultures in the present and should have an enhanced understanding and appreciation both of the sexual and gender diversity of the world in which they live and of the complex ways in which sexuality and gender intersect with other categories of identity and practice.

Undergraduate Study

Lesbian, Gay, Bisexual, and Transgender Studies Minor

To enter the Lesbian, Gay, Bisexual, and Transgender Studies minor, students must have an overall grade-point average of 2.0 or better.

Required Upper Division Courses (32 units): Lesbian, Gay, Bisexual, and Transgender Studies M114, 195, and six additional courses, including at least one each in the humanities, life sciences, and social sciences, to be selected from the approved list of courses available in the program office each term. Students may petition to apply a related course not on the list toward the six-course requirement if they can show that lesbian, gay, bisexual, or transgender issues represent a significant part of the course content. Students are strongly urged to keep in close contact with advisers in the program office who can help them plan their course of study.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Lesbian, Gay, Bisexual, and Transgender Studies

Upper Division Courses

M101A. Lesbian and Gay Literature before Stonewall. (5) (Same as English M101A and Women's Studies M101A.) Lecture, four hours. Requisite: English Composition 3 or 3H. Survey of lesbian and gay literature in English from earlier periods through 1960s. Works by such authors as Walt Whitman, Oscar Wilde, Radclyffe Hall, E.M. Forster, Willa Cather, Virginia Woolf, James Baldwin, Christopher Isherwood, William S. Burroughs, John Rechy, Audre Lorde, and Edward Albee. P/NP or letter grading.

M101B. Lesbian and Gay Literature after Stonewall. (5) (Same as English M101B and Women's Studies M101B.) Lecture, four hours. Requisite: English Composition 3 or 3H. Survey of lesbian and gay literature in English since 1969, year of Stonewall Riots in New York City, commonly recognized as beginning of modern lesbian and gay culture. Works by such authors as Adrienne Rich, Jane Rule, Maureen Duffy, Brigid Brophy, Larry Kramer, Bertha Harris, Edmund White, Rita Mae Brown, Alan Hollinghurst, and Emma Donahue. P/NP or letter grading.

M101C. Special Topics in Lesbian and Gay Literature. (5) (Same as English M101C and Women's Studies M101C.) Lecture, four hours. Enforced requisite: English Composition 3 or 3H. Variable specialized studies course in lesbian and gay literature. Topics focus on particular problem or issue in terms of its relationship to lesbian and gay culture and writing. May be repeated for credit. P/NP or letter grading.

M114. Introduction to Lesbian, Gay, Bisexual, and Transgender Studies. (5) (Same as Women's Studies M114.) Lecture, three hours; discussion, one hour. Introduction to history, politics, culture, and scientific study of lesbians, gay men, bisexuals, and transgendered people; examination of sexuality and gender as categories for investigation; interdisciplinary theories and research on minority sexualities and genders. P/NP or letter grading.

M115. Topics in Study of Sexual and Gender Orientation. (4) (Same as Women's Studies M115.) Lecture/discussion, three hours. Requisite: course M114 or Women's Studies 10. Studies in arts, humanities,

social sciences, and/or life sciences on aspects of sexual orientation, gender identity, and lesbian, gay, and/or bisexual issues; variable topics may include cultural representations, historical and political change, life and health experiences, and queer or transgender theories; multiethnic and cross-cultural emphases. May be repeated for credit. Letter grading.

M116. Sexuality and the City: Queer Los Angeles. (4) (Same as Women's Studies M116.) Lecture, three hours. Requisite: course M114. Investigation of history, culture, and political economy of lesbian, gay, bisexual, and transgender Los Angeles. Letter grading.

M118. Queering American History. (4) (Same as Women's Studies M118.) Lecture, four hours. History of sexual and gender minorities in the U.S. Topics include changing norms, romantic friendships, medical discourse, liberation politics, post-Stonewall culture, AIDS, transgender movement, queer theory and politics. P/NP or letter grading.

M133. Chicana Lesbian Literature. (4) (Same as Chicana and Chicano Studies M133 and Women's Studies M133.) Lecture, three hours. Exploration of intersection of radical First and Third World feminist politics, lesbian sexuality and its relationship to Chicana identity, representation of lesbianism in Chicana literature, meaning of *familia* in Chicana lesbian lives, and impact of Chicana lesbian theory on Chicana/Chicano studies. Letter grading.

M134. Cultural Construction of Gender and Sexuality: Homosexualities. (4) (Same as Anthropology M134 and Honors Collegium M129.) Seminar, three hours. Comparative analysis of role of environment, history, and culture in structuring of patterns of same-sex erotic behavior in Asia, Africa, Middle East, Pacific, Caribbean, and aboriginal America. P/NP or letter grading.

M137. Lesbian, Gay, Bisexual, Transgender, and Queer Perspectives in Pop Music. (5) (Same as Music History M137.) Lecture, four hours; discussion, one hour. Survey of English-language popular music in 20th century, with focus on lesbians, gay men, and members of other sexual minorities as creators, performers, and audience members. Letter grading.

M147A. Psychology of Lesbian Experience. (4) (Same as Psychology M147A and Women's Studies M147A.) Lecture, two hours; discussion, one hour. Requisite: course M114 or Psychology 10 or Women's Studies 10. Designed for juniors/seniors. Review of research and theory in psychology and women's studies to examine various aspects of lesbian experience, impact of heterosexism/stigma, gender role socialization, minority status of women and lesbians, identity development within a multicultural society, changes in psychological theories about lesbians in sociohistorical context. P/NP or letter grading.

150. Speaking Out: Public Speaking on Lesbian, Gay, Bisexual, and Transgender Issues. (1) Discussion, two hours. Interdisciplinary course designed to teach leadership and public speaking skills on lesbian, gay, bisexual, and transgender issues. Sexual identity development, personal growth, and lesbian, gay, bisexual, and transgender history intersect with public speaking and leadership skills. Topics include sexual identities, family, leadership, and public speaking performance. P/NP or letter grading.

M167. Contested Sexualities. (4) (Same as Women's Studies M167.) Lecture, three hours; discussion, one hour. Sociological perspectives on formation, control, and resistance of lesbian, gay, bisexual, and transgendered people. Variable topics include identity and community; age, class, gender, and racial diversity; and analysis of contemporary issues affecting contested sexualities. Letter grading.

187. Selected Topics in Lesbian, Gay, Bisexual, and Transgender Studies. (4) Lecture, four hours; discussion, three hours. Study of selected topics in lesbian, gay, bisexual, and transgender studies. Consult *Schedule of Classes* for topics and instructors. May be repeated for credit with consent of instructor. P/NP or letter grading.

194. Research Group or Internship Seminars: Lesbian, Gay, Bisexual, and Transgender Studies. (2) Seminar, two hours. Preparation: completion of four courses toward minor. Requisite: course M114. Corequisite: course 195. Designed for seniors who are doing internship in lesbian, gay, bisexual, or transgender organization. Discussion of organization theoretical and political issues in context of internship and relation of those issues to ideas explored in minor courses already taken. May be repeated for credit. P/NP grading.

195. Community or Corporate Internships in Lesbian, Gay, Bisexual, and Transgender Studies. (4) Tutorial, one hour. Preparation: completion of four courses toward minor. Requisite: course M114. Corequisite: course 194. Limited to seniors. Internship in supervised setting in lesbian, gay, bisexual, or transgender community organization. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for credit. Individual contract with supervising faculty member required. P/NP or letter grading.

197. Individual Studies in Lesbian, Gay, Bisexual, and Transgender Studies. (2 to 4) Tutorial, one hour. Requisite: course M114. Limited to juniors/seniors. Directed program of independent study or research on specific topic within lesbian, gay, bisexual, and transgender studies, with scheduled meetings to be arranged between faculty member and student. Tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

LIFE SCIENCES

College of Letters and Science

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Scope and Objectives

Students who wish to study life sciences have a choice of eight majors, all of which lead to a Bachelor of Science degree: Biology, Ecology, Behavior, and Evolution, and Marine Biology (Ecology and Evolutionary Biology Department), Microbiology, Immunology, and Molecular Genetics (Microbiology, Immunology, and Molecular Genetics Department), Molecular, Cell, and Developmental Biology (Molecular, Cell, and Developmental Biology Department), Neuroscience (Neuroscience Interdepartmental Program), Physiological Science (Integrative Biology and Physiology Department), and Psychobiology (Psychology Department). This choice reflects the diversity of undergraduate instruction in life sciences at UCLA. Despite this diversity, all of these majors require a common core of introductory courses that forms the foundation for any study of life sciences and that is required for more advanced courses in each major. The common core includes courses in chemistry, physics, and mathematics, as well as introductory courses in evolution and biodiversity, cellular and organismal biology, molecular biology, and genetics. During the first two years, students may also gain experience in a research laboratory through the Student Research Program. For more information on each major, see the individual departmental listings in this section of the catalog. For

additional information on the life sciences core curriculum, see <http://www.lscore.ucla.edu>.

Students considering one of the life sciences majors are encouraged to declare a major as early as possible, even in their first year. In this way, they are identified by the life sciences advising offices and receive important curricular and other information. Because the core curriculum prepares them for any of the eight majors, they have the flexibility to switch to another life sciences major at any time during their progression through the core curriculum. Note: The Marine Biology and Psychobiology majors may require some courses in addition to the life sciences core curriculum as part of the preparation. Consult the course requirements for both majors.

Undergraduate Study

Life Sciences Core Curriculum

Required: Life Sciences 1, 2, 3, 4; Chemistry and Biochemistry 14A, 14B, 14BL, 14C, 14CL, and 14D, or 20A, 20B, 20L, 30A, 30AL, 30B, and 30BL; Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A; Physics 1A, 1B, 1C, 4AL, and 4BL, or 6A, 6B, and 6C.

Each core curriculum course must be passed with a grade of C– or better, and all courses must be completed with an overall grade-point average of 2.0 or better. Students receiving a grade of D or F in two core curriculum courses, either in separate courses or repetitions of the same course, are subject to dismissal from the major.

Transfer Students

Transfer applicants with 90 or more units must complete the following introductory courses prior to admission to UCLA: one year of general biology with laboratory for majors, preferably equivalent to Life Sciences 1 and 2, one year of calculus, one year of general chemistry with laboratory for majors, and one semester of organic chemistry with laboratory. A second semester of organic chemistry or one year of calculus-based physics is strongly recommended but not required for admission.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

Undergraduate Research Consortium in Functional Genomics

The Undergraduate Research Consortium in Functional Genomics (URCFG) offers a sequence of laboratory-intensive courses designed for undergraduate students committed to pursuing research. The innovative partnership between UCLA and the Howard Hughes Medical Institute (HHMI) was formed through a major award to Professor Utpal Banerjee. The HHMI Professors Program seeks to engage leading scientists in transmitting the excitement and values of scientific research to undergraduate education. The goal of the URCFG is to emphasize the importance for academia and

industry of research in the fields of medicine and biotechnology.

Sponsored by the Life Sciences Core, the URCFG provides undergraduate students from any UCLA major with the opportunity to learn biological research techniques early in their educational careers and within a structured institutional environment. Students devote between one and four terms to the study of biological research in genetics, bioinformatics, and functional genomics. The training emphasizes research concepts in basic science such as the model organism and in advanced research techniques such as electron microscopy.

Students participate in one structured lower division course—Life Sciences 10H—which is limited to 30 students per term and is offered every term. After satisfactorily completing course 10H and with instructor consent, students may participate in up to three terms of upper division research in genes, genetics, and genomics. The upper division courses—Life Sciences 100HA, 100HB, 100HC—do not involve preexisting laboratory experiments. Syllabi for the courses are instead based on individual research projects whose outcomes students discover through the course of their studies. It is anticipated that only about one third of the students who complete course 10H will subsequently enroll in course 100HA, and students are advised that they can benefit significantly from course 10H alone.

Each course must be taken for a letter grade. Under special circumstances, one course may be waived for students who have prior research experience in fields covered by the courses. Students who complete the required courses receive a certificate of merit indicating their completion of the consortium.

To participate, students must be accepted into the Undergraduate Research Consortium in Functional Genomics. Interested students should contact the URCFG coordinator in the Molecular, Cell, and Developmental Biology Student Affairs Office, 2128 Life Sciences, (310) 825-7109, for information regarding admission and an application. Applications are due no later than Friday of the fourth week of the term prior to the term in which students plan to enroll in course 10H.

Life Sciences

Lower Division Courses

1. Evolution, Ecology, and Biodiversity. (5) Lecture, three hours; laboratory, two hours; one field trip. Introduction to principles and mechanisms of evolution by natural selection; population, behavioral, and community ecology; and biodiversity, including major taxa and their evolutionary, ecological, and physiological relationships. P/NP or letter grading.

2. Cells, Tissues, and Organs. (5) Lecture, three hours; discussion/laboratory, three hours (alternate weeks). Enforced prerequisite: Chemistry 14A or 20A. Introduction to basic principles of cell structure, organization of cells into tissues and organs, and principles of organ systems. Letter grading.

2L. Introduction to Biology Laboratory. (2) Discussion, one hour; laboratory, three hours. Enforced prerequisite: Chemistry 14A or 20A. Enforced corequisite: course 2. Introductory life sciences laboratory designed for undergraduate students. Opportunity to conduct wet laboratory and cutting-edge bioinformatics laboratory experiments in areas of physiology, metabolism, cell biology, molecular biology, genotyping, and bioinformatics. Letter grading.

3. Introduction to Molecular Biology. (5) Lecture, three hours; discussion/laboratory, three hours (alternate weeks). Enforced prerequisites: course 2, and Chemistry 14C or 30A. Introduction to basic principles of biochemistry and molecular biology. Letter grading.

3H. Introduction to Molecular Biology (Honors). (5) Lecture, two and one-half hours; discussion, 90 minutes; movie section, two and one-half hours. Enforced prerequisites: course 2, and Chemistry 14C or 30A. Honors course parallel to course 3, but at a more advanced level. Letter grading.

4. Genetics. (5) Lecture, three hours; discussion, two hours. Enforced prerequisites: courses 2, 3, Chemistry 14A (or 20A), 14C (or 30A). Principles of Mendelian inheritance and chromosomal basis of heredity in prokaryotes and eukaryotes, recombination, biochemical genetics, mutation, DNA, genetic code, gene regulation, genes in populations. Letter grading.

4A. Collaborative Learning Workshop. (1) Lecture, two hours. Enforced corequisite: course 4. Development of problem-solving skills and intuition in genetics in collaborative learning environment. P/NP grading.

10H. Research Training in Genes, Genetics, and Genomics. (6) Lecture, 90 minutes; laboratory, six hours; computer laboratory, 90 minutes. Limited to 30 students. Basic training in biological research, including techniques in genetics, model organism, bioinformatics, functional genomics, electron microscopy. Part of Undergraduate Research Consortium in Functional Genomics sponsored by Howard Hughes Medical Institute Professors Program. Letter grading.

15. Life: Concepts and Issues. (5) Lecture, three hours; discussion, two hours. Introduction to important concepts and issues in the field for non-life sciences majors. Topics include chemistry of life, genetics, physiology, evolution, and ecology—all explored in lecture and debates, with a writing component. P/NP or letter grading.

71SL. Classroom Practices in Elementary School Science. (2) Seminar, 90 minutes; fieldwork, three hours. Introduction for prospective science teachers to field of elementary education and teaching and learning of science in elementary school classrooms. Pairs of students are placed in local elementary school classrooms to observe, participate, and assist mentor teachers in instruction. Introduction to inquiry-based learning practices, national and California standards, reading and learning differences in children, and cognitive ability of elementary-age children as it relates to introduction of concepts, curricular planning, classroom management, and learning assessment. P/NP grading.

72SL. Classroom Practices in Middle School Science. (2) Seminar, 90 minutes; fieldwork, three hours. Enforced prerequisite: course 71SL. Introduction for prospective science teachers to field of secondary education and teaching and learning of science in middle school classrooms. Pairs of students are placed in local middle school classrooms to observe, participate, and assist mentor teachers in instruction. Discussion of learning in middle school culture, cognitive development of students at this level, and best means to teach appropriate science concepts at this level. P/NP grading.

73SL. High School Science. (2) Seminar, 90 minutes; service learning fieldwork, three hours. Enforced prerequisites: courses 71SL, 72SL. Introduction for prospective science teachers to field of secondary education and teaching and learning of science in high school classrooms. Pairs of students are placed in local high school classrooms to observe, participate, and assist mentor teachers in instruction. Discussion of

learning in high school culture, cognitive development of students at this level, and best means to teach appropriate science concepts at this level. P/NP grading.

97. Variable Topics in Life Sciences. (1 to 4) Seminar, two to four hours. Current issues in research and/or development in life sciences. Consult *Schedule of Classes* for topics and instructors. May be repeated once for credit with consent of instructor. P/NP or letter grading.

98X. PEERS Collaborative Learning Workshops for Life Sciences Majors. (1) Laboratory, three hours. Corequisite: associated undergraduate lecture course in life sciences. Development of intuition and problem-solving skills in collaborative learning environment. May be repeated three times, but only 1 unit may be applied toward graduation. P/NP grading.

Upper Division Courses

100HA-100HB-100HC. Advanced Research in Genes, Genetics, and Genomics. (4-4-4) Lecture, two hours; laboratory, 10 hours. Requisite: course 10H. Course 100HA is requisite to 100HB, which is requisite to 100HC. Designed for undergraduates who are committed to pursuing research. Advanced research training in genetics, cell and developmental biology, bioinformatics, functional genomics. Techniques include electron microscopy, other light microscopies, immunohistochemistry. Part of Undergraduate Research Consortium in Functional Genomics sponsored by Howard Hughes Medical Institute Professors Program. Letter grading.

130. Science Classroom Observation and Participation. (1) Seminar, one hour. Preparation: completion of three mathematics and/or science courses at level required of science majors. Observation, participation, and assisting in science classes at elementary, middle, and secondary schools. May be repeated for credit. P/NP grading.

192A. Undergraduate Practicum in Life Sciences. (4) Seminar, two hours. Requisite: course 2 or 3. Training and supervised practicum in laboratory setting for advanced undergraduate students in courses related to life sciences. Students work on oral presentation skills and assist in preparation and presentation of materials and development of programs under guidance of faculty members. May be repeated once for credit. Letter grading.

192B. Undergraduate Practicum in Life Sciences. (4) Seminar, two hours. Requisite: course 2 or 3. Limited to sophomores/juniors/seniors. Training and supervised practicum for advanced undergraduate students in courses related to life sciences. Students work on oral presentation skills and assist in preparation and presentation of materials and development of programs under guidance of faculty members. Letter grading.

199. Directed Research or Senior Project in Life Sciences. (2) Tutorial, two hours. Enforced requisite: course 3. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper/project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Course

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

LINGUISTICS

College of Letters and Science

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Assistant Professors

Robert T. Daland, Ph.D.
Jessica L. Rett, Ph.D.
Megha Sundara, Ph.D.

Scope and Objectives

The goal of linguistics is the enrichment of knowledge about the nature, grammar, and history of human language. Linguistics is a theoretical discipline, akin to philosophy, anthropology, and cognitive psychology. It is important for prospective students to understand that studying linguistics is not a matter of learning to speak many languages. Linguistics courses draw examples from the grammars of a wide variety of languages, and the more languages linguists know about in depth (as distinct from possessing fluency in the use of them), the more likely they are to discover universal properties. It is also possible to pursue these universal aspects of human language through the intensive in-depth study of a single language. This accounts for the high proportion of examples from English and familiar European languages found in linguistics courses and research publications.

The core areas of linguistic theory are phonology (with its roots in phonetics), morphology, syntax, and semantics. A grammar is a system of rules that characterize the phonology, morphology, syntax, and semantics of a natural

language. The properties of grammars are the central focus of linguistic theory.

Because language is central to all humanistic disciplines, as well as to several social sciences areas, it is studied from many points of view. Linguistics itself cannot be said to recognize a single optimal approach to the subject. Hence, the courses provide a variety of approaches that reflect the diversity of the field.

The Linguistics Department has consistently been ranked among the very best linguistics departments in the country. It offers programs leading to the Bachelor of Arts, Master of Arts, and Ph.D. degrees.

Undergraduate Study

The majors described below are of two types: (1) a major that concentrates entirely on general linguistics and (2) several majors that combine the basic courses of the general program with a language concentration or other related fields. The combined majors in conjunction with instructional certification programs are especially appropriate for students who have non-university teaching careers as goals.

A 2.0 grade-point average in linguistics courses is required for all Linguistics Department majors.

Linguistics B.A.

The Linguistics major is designed for students with an exceptional interest in and aptitude for the study of languages and linguistics. It enables undergraduates to gain substantial familiarity with several languages and types of linguistic structure and to become conversant with the historical study of language and formal theories of linguistics.

Preparation for the Major

Required: Linguistics 20; two of the following: Philosophy 31, Psychology 10 or 100A, one cultural anthropology course; completion of the equivalent of the sixth term of one foreign language and the third term of a second foreign language.

Students who complete an advanced language course are considered to have completed the equivalent of whatever courses are requisite to that one (e.g., if students complete French 100, they have automatically satisfied the requirement of the sixth term of work in one language). Students are required to complete at least the equivalent of the third term in a language other than those in the Romance, Slavic, or Germanic families. This requirement may be satisfied either as part of or in addition to the language requirement described in the preceding paragraph.

Transfer Students

Transfer applicants to the Linguistics major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: one introduction to linguistics course, two courses from symbolic logic, introductory psychology or psychological statistics, or cultural anthropology, and two years of one foreign language and one year of

a second foreign language (at least one year must be in a language other than those in the Romance, Slavic, or Germanic families).

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Eleven upper division or graduate courses, including Linguistics 103, 110, 120A, 120B, 130 or 132, and two courses from 125, 165A, 165B (students may substitute courses 200A and 200B for 165A and 165B respectively if they receive grades of A in 120A and 120B respectively and have consent of instructor). Both courses 165A and 165B, or 200A and 200B, are recommended for students planning linguistics graduate work. The remaining four courses are electives, three of which must be linguistics courses (no more than one course from 197, 198A, and 199 may be applied toward the major). The other course may be in linguistics or in another field as follows: Anthropology 143, Classics 180, English 121, 122, Philosophy 127A, 127B, 172, Psychology 120A, 124E, 133C, or an upper division course in a foreign language beyond the sixth term. Nonlinguistics courses not on the list may be used as electives only in consultation with an adviser.

Linguistics 198A and 198B, or 199, are recommended for students planning to pursue graduate work in linguistics, since they provide an opportunity to engage in independent research and to write a paper that can be submitted to graduate admissions committees. To enroll in the courses, students must consult with the department's senior essay and honors counselor.

Linguistics and Anthropology B.A.

Preparation for the Major

Required: Linguistics 20, completion of the equivalent of the sixth term of one foreign language and the third term of a second foreign language (at least three terms must be in a language other than those in the Romance, Slavic, and Germanic families). Anthropology 33 is strongly recommended, when offered.

Transfer Students

Transfer applicants to the Linguistics and Anthropology major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: one introduction to linguistics course and two years of one foreign language and one year of a second foreign language (at least one year must be in a language other than those in the Romance, Slavic, or Germanic families). One cultural and communication course is strongly recommended.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Eleven upper division courses as follows: Linguistics 103, 110, 120A, 120B or 127; two courses from 114, 125, 170; Anthropology M140 and either C144 or M145; one course from Anthropology 141, 142A, 143, or Sociology M124A; and two upper division electives from Anthropology 141, 142A, 143, C144, M145, the 130 series (one course only), the 170 series (one course only), Sociology M124A, M124B. Linguistics 165A and 165B (or 200A and 200B with grades of A in 120A and 120B respectively and consent of instructor) are recommended for students planning to pursue graduate work in linguistics.

Linguistics and Asian Languages and Cultures B.A.

Preparation for the Major

Required: Completion of the sixth term in either Chinese, Japanese, or Korean; Linguistics 20; one cultural anthropology course; either Chinese 50, Japanese 50, or Korean 50, as appropriate; completion of the equivalent of the third term of a second foreign language.

Transfer Students

Transfer applicants to the Linguistics and Asian Languages and Cultures major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: two years of either Chinese, Japanese, or Korean, one introduction to linguistics course, one cultural anthropology course, one Chinese, Japanese, or Korean civilization course, and one year of a second foreign language.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Linguistics 103, 110, 120A, 120B, 165A or 165B, one upper division elective in linguistics; for the classical Japanese track: Japanese 100A, 100B, four courses from CM122, 140A, 140B, 140C, C149; for the modern Japanese track: Japanese 100A, 100B, 100C, three courses from M120, CM122, CM123 or CM127, 130B; for the classical Chinese track: Chinese 110A, 110B, 110C, three courses from 140A through 140D, 165, 187; for the modern Chinese track: Chinese 100A, 100B, 100C, three courses from 101A, 101B, 130A, 130B; for the Korean track: Korean 100A, 100B, 100C, three courses from 101A, 101B, 101C, CM120, CM127, 130A, 130B.

Linguistics and Computer Science B.A.

Preparation for the Major

Required: Linguistics 20, Computer Science 31, 32, 33, 35L, Mathematics 31A, 31B, 61 or 180, Philosophy 31, completion of the sixth term in one foreign language or the third term in each of two foreign languages.

Transfer Students

Transfer applicants to the Linguistics and Computer Science major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: one introduction to linguistics course, two calculus courses, one symbolic logic course, four computer programming courses, and two years of one foreign language or one year in each of two foreign languages. One discrete structures course is recommended.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Eleven upper division courses as follows: Linguistics 103, 120A, 120B, 125, 165A or 165B, C180, 185A, Computer Science 131, 132, 161, 181.

Linguistics and English B.A.

Preparation for the Major

Required: Linguistics 20, English 4W or 4HW, 10A, 10B, 10C, Philosophy 31, completion of the equivalent of the sixth term of one foreign language and the third term of a second foreign language.

Transfer Students

Transfer applicants to the Linguistics and English major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: one introduction to linguistics course, one critical reading and writing course, one year of English literature survey courses, one symbolic logic course, and two years of one foreign language and one year of a second foreign language.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Twelve upper division courses as follows: Linguistics 103, 110, 120A, 120B, 165A or 165B (or 200A or 200B with a grade of A in 120A or 120B respectively and consent of instructor), one upper division elective in linguistics, English 121, 122 (or Applied Linguistics C116), 140A, and three electives from 141A, 141B, 142A, 142B, 143, the 150 series (one course only), the 160 series (one course only), the 170 series (one course only).

Linguistics and French B.A.

Preparation for the Major

Required: Linguistics 20, French 1, 2, 3, 4, 5, 6, 12, 15, completion of the equivalent of the third term of a second foreign language.

Transfer Students

Transfer applicants to the Linguistics and French major with 90 or more units must complete as many of the following introductory

courses as possible prior to admission to UCLA: two years of French, one introduction to linguistics course, one French literature course, one French diction course, and one year of a second foreign language.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Twelve upper division courses as follows: Linguistics 103, 110, 120A, 120B, 165A or 165B (or 200A or 200B with a grade of A in 120A or 120B respectively and consent of instructor), one upper division elective in linguistics, French 100, 101, 102, 105, 107, and one elective upper division French literature course.

Linguistics and Italian B.A.

Preparation for the Major

Required: Linguistics 20, Italian 1, 2, 3, 4, 5, 6, Latin 1, 2, 3, one cultural anthropology course.

Transfer Students

Transfer applicants to the Linguistics and Italian major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: two years of Italian, one year of Latin, one introduction to linguistics course, and one cultural anthropology course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Twelve upper division courses as follows: Linguistics 103, 110, 120A, 120B, 165A or 165B (or 200A or 200B with a grade of A in 120A or 120B respectively and consent of instructor), two upper division electives in linguistics, Italian 102A, 180, and three upper division electives in Italian.

Linguistics and Philosophy B.A.

Preparation for the Major

Required: Linguistics 20, Philosophy 31, and two courses from 1, 6, 7, 21, completion of the equivalent of the sixth term of one foreign language and the third term of a second foreign language.

Transfer Students

Transfer applicants to the Linguistics and Philosophy major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: one introduction to linguistics course, two symbolic logic courses and two courses from Western philosophy, political philosophy, philosophy of mind, or skepticism and rationality, and two years of one foreign language and one year of a second foreign language.

Refer to the *UCLA Transfer Admission Guide* at [http://www.admissions.ucla.edu/prospect/adm](http://www.admissions.ucla.edu/prospect/adm_tr.htm)

_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Twelve upper division courses as follows: Linguistics 103, 120A, 120B, 125, 165B or C180, one upper division elective in linguistics; six upper division courses in philosophy, including at least five from Philosophy 124 through 135, 170, 172, 174, 180, 181, 184, of which at least two must be from 127A, 127B, 172.

Linguistics and Psychology B.A.

Preparation for the Major

Required: Linguistics 20, Psychology 10, 85, 100A, 100B, completion of the equivalent of the sixth term of one foreign language and the third term of a second foreign language. Program in Computing 10A is strongly recommended.

Transfer Students

Transfer applicants to the Linguistics and Psychology major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: one introduction to linguistics course, one introduction to psychology course, one introduction to cognitive science course, one psychological statistics course, one psychology research methods course, and two years of one foreign language and one year of a second foreign language. One introduction to programming course is strongly recommended.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Eleven upper division courses (six in linguistics and five in psychology) as follows: Linguistics 103, 120A, 120B, 130, 132, and one upper division elective in linguistics (multiple-listed courses may not be applied). Linguistics C135 or 165A or 165B (or 200A or 200B with a grade of A in 120A or 120B respectively and consent of instructor) is strongly recommended. Also required are Psychology 120A, 121, 133B, and two electives to be selected from 115, 116, M117C, 118, M119L, 124A, 124B, 124C, 124E, 130, 133C, 133E, 133F, 186A, 186B.

Linguistics and Scandinavian Languages B.A.

Preparation for the Major

Required: Linguistics 20, Scandinavian 1, 2, 3, 4, and 5, or 11, 12, 13, 14, and 15, or 21, 22, 23, 24, and 25, completion of the equivalent of the third term of a second foreign language.

Transfer Students

Transfer applicants to the Linguistics and Scandinavian Languages major with 90 or more units must complete as many of the following introductory courses as possible prior to admis-

sion to UCLA: two years of either Swedish, Norwegian, or Danish, one introduction to linguistics course, and one year of a second foreign language.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Eleven upper division courses as follows: Linguistics 103, 110, 120A, 120B, 165A or 165B (or 200A or 200B with a grade of A in 120A or 120B respectively and consent of instructor), one upper division elective in linguistics, two courses from Scandinavian 105, 106, 107 (or one of these courses twice), 197 (in a topic related to Scandinavian linguistics, under the direction of a Scandinavian or Linguistics faculty member), and three upper division electives in Scandinavian.

Linguistics and Spanish B.A.

Preparation for the Major

Required: Linguistics 20, Spanish 1, 2, 3, 4, 5, 6, 25 or 27, M42, M44, completion of the equivalent of the third term of a second foreign language.

Transfer Students

Transfer applicants to the Linguistics and Spanish major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: two years of Spanish, one Spanish composition course, one Spanish civilization course, one Spanish American civilization course, one introduction to linguistics course, and one year of a second foreign language.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Twelve upper division courses as follows: Linguistics 103, 110, 120A, 120B, 165A or 165B (or 200A or 200B with a grade of A in 120A or 120B respectively and consent of instructor), one additional upper division course in linguistics, Spanish 100A, 100B, 115 or M118A, two courses from 119A, 119B, 119C, and one additional upper division Spanish course.

Honors Program

Honors in linguistics are awarded at graduation to those students who have a grade-point average of 3.6 or better in their junior and senior years and who have received a grade of A in Linguistics 198A and 198B or in 199. Qualified students may be proposed by any member of the faculty to the faculty as a whole for the award of highest honors on the basis of a piece of research in linguistics completed at UCLA.

Computing Specialization

Students in any of the linguistics majors (except Linguistics and Computer Science) may select a specialization in Computing by (1) satisfying all the requirements for a bachelor's degree in the specified major and (2) completing Program in Computing 10A, 10B, 10C, 60, Linguistics C180, 185A. Students graduate with a bachelor's degree in their major and a specialization in Computing.

Linguistics Minor

The Linguistics minor is designed for students where training in linguistic analysis could be an enhancement to their major programs and to students who are interested in language(s) but do not have time in their undergraduate programs to pursue multiquarter language sequences. In addition, the minor provides students with a way to design "custom" joint degrees with linguistics where the Linguistics Department does not have an existing joint degree program combining linguistics and another field.

To enter the minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Course (5 units): Linguistics 20.

Required Upper Division Courses (27 to 30 units): Six courses, which must include Linguistics 103, 120A, 120B, two elective courses selected from 104 through 185B, and an additional elective linguistics course, which may be upper or lower division.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Linguistics offers Master of Arts (M.A.), Candidate in Philosophy (C.Phil.), and Doctor of Philosophy (Ph.D.) degrees in Linguistics.

Indigenous Languages of the Americas

Lower Division Courses

1. Elementary Zapotec. (4) Lecture, five hours. Introduction to Zapotec language of Tlacolula Valley of Oaxaca. P/NP or letter grading.

2. Elementary Zapotec. (4) Lecture, five hours. Enforced requisite: course 1. Introduction to Zapotec language of Tlacolula Valley of Oaxaca. P/NP or letter grading.

3. Elementary Zapotec. (4) Lecture, five hours. Enforced requisite: course 2. Introduction to Zapotec language of Tlacolula Valley of Oaxaca. P/NP or letter grading.

17. Intensive Elementary Quechua. (12) (Formerly numbered Quechua 17.) Lecture, 15 hours; laboratory, five hours. Intensive course equivalent to courses 18A, 18B, 18C. Language of Incas and its present-day dialects, as spoken in Andean South America. Offered in summer only. Letter grading.

18A-18B-18C. Elementary Quechua. (4-4-4) (Formerly numbered Quechua 18A-18B-18C.) Lecture, five hours. Course 18A is enforced requisite to 18B, which is enforced requisite to 18C. Language of Incas and present-day Quechua language, as spoken in Andean South America. P/NP or letter grading.

Upper Division Courses

119A-119B-119C. Advanced Quechua. (4-4-4) (Formerly numbered Quechua 119A-119B-119C.) Lecture, five hours. Requisite: course 18C. Course 119A is requisite to 119B, which is requisite to 119C. Readings in Quechua. Dialectal and stylistic variation. Discussions mainly in Quechua. P/NP or letter grading.

191. Variable Topics Research Seminars: Indigenous Languages. (2 or 4) (Formerly numbered Quechua 191.) Seminar, three hours. Research seminars on selected topics on various indigenous languages. Reading, discussion, and development of culminating project. May be repeated for credit with topic change. P/NP or letter grading.

Graduate Course

596. Directed Studies in Quechua. (1 to 8) (Formerly numbered Quechua 596.) Tutorial, to be arranged. Requisites: courses 119A, 119B, 119C. Directed individual study or research in Quechua. Four units may be applied toward M.A. course requirements. May be repeated for credit. S/U grading.

Linguistics

Lower Division Courses

1. Introduction to Study of Language. (5) Lecture, three hours; discussion, one hour. Summary, for general undergraduates, of what is known about human language; unique nature of human language, its structure, its universality, and its diversity; language in its social and cultural setting; language in relation to other aspects of human inquiry and knowledge. P/NP or letter grading.

2. Language in the U.S. (5) Lecture, four hours; discussion, one hour. Survey of languages of the U.S. (American Indian languages, oldest immigrant languages, ethnic and regional varieties of English, and newest arrival languages) and social and political aspects of American language use. P/NP or letter grading.

3. American Sign Language: Structure and Culture. (4) Lecture, four hours; discussion, one hour. Knowledge of American Sign Language (ASL) not required. Introduction to principles of linguistics through study of structure of American Sign Language and culture of deaf Americans. Phonology, morphology, syntax of ASL, historical change, signed language universals, education, identity, and ASL literature. P/NP or letter grading.

4. Language and Evolution. (5) Lecture, four hours; discussion, one hour. Basic concepts and tools of evolutionary theory and linguistics relevant to how organisms with linguistic abilities could evolve, and how particular languages, as cultural artifacts, survive and change so rapidly. P/NP or letter grading.

5. Languages of World. (5) Lecture, four hours; discussion, one hour. Introduction to linguistic diversity of world and to such core areas of linguistics as study of sound production and patterning (phonetics and pho-

nology), word formation (morphology), and sentence formation (syntax). Structural characteristics of world's languages and methods of classifying languages into families and types. Detailed discussion of representative languages with audiovisual illustrations to acquaint students with distinctive features of several key language families. Discussion of such linguistic concepts as pidgins and creoles, unaffiliated languages, language contact, and language endangerment, together with related sociopolitical issues. P/NP or letter grading.

6. Out of Mouths of Babies. (4) Lecture, six hours. How children acquire language, most complex of human cognitive achievements. Look at amazing linguistic abilities of infants and their first perception and production of speech sounds, then investigation of how children learn words and rules for producing and understanding sentences. Language acquisition in special populations such as children acquiring sign languages, bilingual children, and people acquiring language beyond critical period. Focus mainly on English, with consideration of other languages. Offered in summer only. P/NP or letter grading.

M10. Structure of English Words. (5) (Same as English M40.) Lecture, four hours; discussion, one hour. Introduction to structure of English words of classical origin, including most common base forms and rules by which alternate forms are derived. Students may expect to achieve substantial enrichment of their vocabulary while learning about etymology, semantic change, and abstract rules of English word formation. P/NP or letter grading.

20. Introduction to Linguistics. (5) Lecture, four hours; discussion, one hour. Introduction to theory and methods of linguistics: universal properties of human language; phonetic, phonological, morphological, syntactic, and semantic structures and analysis; nature and form of grammar. P/NP or letter grading.

88A-88B. Lower Division Seminars. (4-4) Seminar, three hours. Limited to freshmen/sophomores. Variable topics; consult *Schedule of Classes*, College of Letters and Science, or department for topics to be offered in specific term. May be repeated for credit. P/NP or letter grading.

97. Variable Topics in Linguistics. (1 to 4) Seminar, three hours; fieldwork, two hours. Variable topics offered by departmental faculty members. May be repeated for credit with topic change. P/NP or letter grading.

Upper Division Courses

103. Introduction to General Phonetics. (5) Lecture, four hours; discussion, one hour. Enforced requisite: course 20. Phonetics of variety of languages and phonetic phenomena that occur in languages of world. Extensive practice in perception and production of such phenomena. P/NP or letter grading.

104. Experimental Phonetics. (5) Lecture, four hours; discussion, one hour. Requisite: course 103. Survey of principal techniques of experimental phonetics. Use of laboratory equipment for recording and measuring phonetic phenomena. P/NP or letter grading.

105. Morphology. (5) Lecture, four hours; discussion, one hour. Enforced requisite: course 20. In linguistics, morphology is study of word structure. Morphological theory seeks to answer questions such as how should words and their component parts (roots, prefixes, suffixes, vowel changes) be classified crosslinguistically? how do speakers store, produce, and process complex words (words with affixes, compounds)? how do speakers know how to produce correct word forms even when they have not previously heard them and how do speakers know that particular words are well-formed or ill-formed? is there principled distinction in traditional division between inflection and derivation? how can we best account for variation in forms that are same (e.g., root in keep/kept even though vowels are different)? can we formulate crosslinguistic generalizations about word structure? P/NP or letter grading.

110. Introduction to Historical Linguistics. (5) Lecture, four hours; discussion, one hour. Requisites: courses 20, 103, 120A. Methods and theories appropriate to historical study of language, such as com-

parative method and method of internal reconstruction. Sound change, grammatical change, semantic change. P/NP or letter grading.

111. Intonation. (4) Lecture, two hours; laboratory, two hours. Requisites: courses 20, 103, 120A or 120B. Recommended: course 104 or 204A. Survey of intonational theory for English and other languages, with particular emphasis on phonological models of intonation. Laboratory equipment used for recording and analyzing intonation, and students learn to transcribe intonational elements. Letter grading.

114. American Indian Linguistics. (5) Lecture, four hours; discussion, one hour. Strongly recommended preparation: course 20. Survey of genetic, areal, and typological classifications of American Indian languages; writing systems for American Indian languages; American Indian languages in social and historical context. One or more languages may be investigated in detail. P/NP or letter grading.

M115. Survey of African Languages. (4) (Same as African Languages M187.) Lecture, four hours. Requisite: course 20. Introduction to languages of Africa, their distribution and classification, and their phonological and grammatical structures; elementary practice in several languages. P/NP or letter grading.

M116. Introduction to Japanese Linguistics. (4) (Same as Japanese M120.) Lecture, three hours; discussion, one hour. Enforced requisite: Japanese 3 or Japanese placement test. Introduction to Japanese grammar and sociolinguistics through reading, discussion, and problem solving in phonology, syntax, semantics, and discourse pragmatics. Letter grading.

120A. Phonology I. (5) Lecture, four hours; discussion, one hour. Requisites: courses 20, 103. Introduction to phonological theory and analysis. Rules, representations, underlying forms, derivations. Justification of phonological analyses. Emphasis on practical skills with problem sets. P/NP or letter grading.

120B. Syntax I. (5) Lecture, four hours; discussion, one hour. Requisite: course 20. Course 120A is not requisite to 120B. Descriptive analysis of morphological and syntactic structures in natural languages; emphasis on insight into nature of such structures rather than linguistics formalization. P/NP or letter grading.

125. Semantics. (5) Lecture, four hours; discussion, one hour. Requisite: course 120B. Survey of most important theoretical and descriptive claims about the nature of meaning. P/NP or letter grading.

127. Syntactic Typology and Universals. (5) Lecture, four hours; discussion, one hour. Requisite: course 20. Study of essential similarities and differences among languages in grammatical devices they use to signal the following kinds of concepts: relations between nouns and verbs (case and word order), negation, comparison, existence/location/possession, causation, interrogation, reflexivization, relativization, attribution (adjectives), time (tense and aspect), and backgrounding (subordination). Data from a range of languages presented and analyzed. P/NP or letter grading.

C128A-C128B. Romance Syntax: French. (4-4) Lecture, four hours. Preparation: some knowledge of French (or one Romance language). Enforced requisite: course 120B. Course C128A is enforced requisite to C128B. Aspects of structure of French language, with emphasis on properties of construction not found in English. Concurrently scheduled with course C228A-C228B. P/NP or letter grading.

130. Language Development. (5) Lecture, four hours; discussion, one hour. Requisites: courses 20, 120A, 120B. Survey of research and theoretical perspectives in language development in children. Discussion and examination of child language data from English and other languages. Emphasis on universals of language development. Topics include infant speech perception and production, development of phonology, morphology, syntax, and word meaning. P/NP or letter grading.

132. Language Processing. (5) Lecture, four hours; laboratory, one hour. Requisites: courses 20, 120A, 120B. Central issues in language comprehension and production, with emphasis on how theories in linguistics

inform processing models. Topics include word understanding (with emphasis on spoken language), parsing, anaphora and inferring, speech error models of sentence production, and computation of syntactic structure during production. P/NP or letter grading.

C135. Neurolinguistics. (5) Lecture, four hours; discussion, one hour. Requisites: courses 1 or 20, and 130. Examination of relationship between brain, language, and linguistic theory, with evidence presented from atypical language development and language disorders in the mature brain. Topics include methodologies to investigate normal and atypical hemispheric specialization for language and children and adults with acquired and/or congenital language disorders. Concurrently scheduled with course C235. P/NP or letter grading.

C140. Bilingualism and Second Language Acquisition. (5) Lecture, four hours; discussion, one hour. Requisites: courses 120A, 120B, 130. Introduction to study of childhood bilingualism and adult and child second language (L2) acquisition, with focus on understanding nature of L2 grammar and grammatical processes underlying L2/bilingual acquisition. Discussion of neurolinguistic and social aspects of bilingualism. Concurrently scheduled with course C244. P/NP or letter grading.

M146. Language in Culture. (5) (Same as Anthropology M140.) Lecture, three hours; discussion, one hour; fieldwork, two hours. Requisite: course 20 or Anthropology 33. Study of language as aspect of culture; relation of habitual thought and behavior to language; and language and classification of experience. Holistic approach to study of language, with emphasis on relationship of linguistic anthropology to fields of biological, cultural, and social anthropology, as well as archaeology. P/NP or letter grading.

M150. Introduction to Indo-European Linguistics. (5) (Same as Indo-European Studies M150.) Lecture, four hours; discussion, one hour (when scheduled). Enforced requisite: course 1 or 20. Indo-European languages (ancient and modern), including their relationships, chief characteristics, writing systems, and sociolinguistic contexts; nature of reconstructed Indo-European proto-language and proto-culture. One or more Indo-European languages may be investigated in detail. P/NP or letter grading.

160. Field Methods. (5) Seminar, four hours; individual or group sessions, one to two hours. Requisites: courses 103, 120A, 120B. Analysis of language unknown to members of class from data elicited from native speaker of that language. P/NP or letter grading.

165A. Phonology II. (5) Lecture, four hours; discussion, one hour. Requisite: course 120A (undergraduates with grade of A in course 120A may replace course 165A with 200A, with consent of instructor). Further study in phonological theory and analysis: autosegmental theory, syllable structure, metrical theory, interface of phonology and grammar. P/NP or letter grading.

165B. Syntax II. (5) Lecture, four hours; discussion, one hour. Requisite: course 120B. Recommended for students who plan to do graduate work in linguistics. Form of grammars, word formation, formal and substantive universals in syntax, relation between syntax and semantics. P/NP or letter grading.

170. Language and Society: Introduction to Sociolinguistics. (4) Requisite: course 20. Study of patterned covariation of language and society; social dialects and social styles in language; problems of multilingual societies.

175. Linguistic Change in English. (5) Lecture, four hours. Requisites: courses 110, 120A, 120B. Principles of linguistic change as exemplified through detailed study of history of English pronunciation, lexicon, and syntax. P/NP or letter grading.

M176A. Japanese Phonology and Morphology. (4) (Same as Japanese CM122.) Lecture, three hours; discussion, one hour. Recommended preparation: two or more years of Japanese. Survey of Japanese phonetics, phonology, and morphology. Letter grading.

M176B. Structure of Japanese. (4) (Same as Japanese CM123.) Lecture, three hours; discussion, one hour. Recommended preparation: two years of Japanese.

Functional linguistic analysis of grammatical structures of Japanese, often in form of contrastive analysis of Japanese, English, and other languages. Letter grading.

M177. Structure of Korean. (4) (Same as Korean CM120.) Lecture, three hours. Recommended preparation: two years of Korean, or one year of Korean and some knowledge of linguistics. Discussion of major syntactic, semantic, and pragmatic characteristics of Korean in light of linguistic universals, with brief introduction to formation, typological features, and phonological structure of Korean. Letter grading.

M178. Contrastive Analysis of Japanese and Korean. (4) (Same as Japanese CM127 and Korean CM127.) Lecture, three hours. Recommended preparation: two years of Japanese or Korean, one introductory linguistics course. Critical reading and discussion of selected current research papers in syntax, pragmatics, discourse, and sociolinguistics from perspective of contrastive study of Japanese and Korean. May be repeated for credit with consent of instructor. Letter grading.

C180. Mathematical Structures in Language I. (5) Lecture, four hours; discussion, one hour. Requisite: course 120B. Recommended: Philosophy 31. Prior mathematics knowledge not assumed. Mathematical introduction to phonology, syntax, and semantics. Elementary material on logic, sets, functions, relations, and trees. Concurrently scheduled with course C208. P/NP or letter grading.

185A. Computational Linguistics I. (5) Lecture, four hours; laboratory, one hour. Requisites: courses 120B, C180, Program in Computing 10B. Recommended: course 165B or 200B, Program in Computing 60. Survey of recent work on natural language processing, including basic syntactic parsing strategies, with brief glimpses of semantic representation, reasoning, and response generation. P/NP or letter grading.

185B. Computational Linguistics II. (5) Lecture, four hours; laboratory, one hour. Requisite: course 185A. Extensions of basic language processing techniques to natural language processing. Recent models of syntactic, semantic, and discourse analysis, with particular attention to their linguistic sophistication and psychological plausibility. P/NP or letter grading.

191A. Variable Topics Research Seminars: Linguistics. (4) Seminar, three hours. Requisite: course 1 or 20. Research seminar on selected topics. Reading, discussion, and development of culminating project. May be repeated for credit with topic change. P/NP or letter grading.

191B. Variable Topics Research Seminars: Linguistics. (2 or 4) Seminar, three hours. Research seminar on selected topics. Reading, discussion, and development of culminating project. May be repeated for credit with topic change. P/NP or letter grading.

197. Individual Studies in Linguistics. (2 to 4) Tutorial, four hours. Requisite: course 1 or 20. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

198A. Honors Research in Linguistics I. (4) Tutorial, to be arranged. Preparation: 3.5 grade-point average. Requisite or corequisite: course 165A (or 200A) or 165B (or 200B). Recommended: completion of both courses 165A and 165B (or 200A and 200B) before or during term in which course 198A is taken. Limited to juniors/seniors. Development of honors thesis or comprehensive research project on linguistic topic selected by student under direct supervision of faculty member. Consult professor in charge to enroll. May be repeated for credit. Individual contract required. In Progress grading (credit to be given only on completion of course 198B).

198B. Honors Research in Linguistics II. (2) Tutorial, to be arranged. Requisite: course 198A. Limited to juniors/seniors. Completion of honors thesis or comprehensive research project begun in course 198A

der direct supervision of faculty member. Consult professor in charge to enroll. May be repeated for credit. Individual contract required. Letter grading.

199. Directed Research or Senior Project in Linguistics. (4) Tutorial, to be arranged. Limited to senior Linguistics majors. Supervised individual research or investigation of linguistic topic selected by student under guidance of faculty mentor. Culminating paper required. Consult professor in charge to enroll. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200A. Phonological Theory I. (4) Preparation: graduate linguistics student or grade of A in course 120B or equivalent course in phonology. Courses 200A and 201 form two-course survey of current research in phonological theory. Interaction of phonology with morphology and syntax, syllable structure, stress.

200B. Syntactic Theory I. (4) Preparation: graduate linguistics student or grade of A in course 120B or equivalent course in syntax. In-depth introduction to selected topics in theory of constituent structure and syntax of predicates, arguments, and grammatical relations. Topics include levels of representation, X-bar theory, case theory, thematic roles, the lexicon, grammatical function-changing rules, head-complement relations.

200C. Semantic Theory I. (4) Lecture, four hours. Requisite: course C180 or C208. Overview of current results and research methods in linguistic semantics. Topics include generalized quantifiers and semantic universals, predicate argument structures, variable binding and pronominalization, formal semantic interpretation, syntax and LF, tense, ellipsis, and focus. Letter grading.

201. Phonological Theory II. (4) Requisite: course 200A. Continuation of course 200A. Second course in two-course survey of current research in phonological theory. Topics include autosegmentalism (tone, tiers, segment structure), feature theory, underspecification, prosodic morphology.

202. Language Change. (4) Requisites: courses 110, 200A, 200B. Survey of current theories and research problems in language change.

203. Phonetic Theory. (4) Requisite: course 120A. Preliminaries to speech analysis. Functional anatomy of vocal organs; fundamental principles of acoustics and of acoustic theory of speech production; issues in perception of speech; nature and design of feature systems for phonetic and phonological analysis.

204A. Experimental Phonetics. (4) (Formerly numbered 204.) Lecture, three hours. Requisite: course 103. Use of laboratory equipment to investigate articulatory, acoustic, and perceptual properties of speech. Topics include experimental design and statistics; theoretical basis of acoustic structure of speech sounds; computer-based speech processing, analysis, and modeling; perceptual and acoustic evaluation of synthetic speech. S/U or letter grading.

204B. Speech Production. (4) Lecture, three hours; laboratory, one hour. Requisite: course 104 or 204A. Survey of topics in speech production research, especially as related to linguistic phonetics. Topics include physiology of vocal tract and models of speech production and articulatory/acoustic relations. Emphasis on use of laboratory methods such as aerodynamic transducers, electroglottography, static and electropalatography, electromagnetic articulography, and imaging techniques. S/U or letter grading.

205. Morphological Theory. (4) Requisites: courses 200A, 200B. Survey of current theories and research problems in morphology. Nature of morphological structure; derivational and inflectional morphology; relation of morphology to phonology, syntax, and the lexicon.

206. Syntactic Theory II. (4) Requisite: course 200B. In-depth introduction to selected topics in theory of movement processes and topics selected from following areas: WH-movement and related rules, subjacency and other constraints on movement; ECP and related conditions on distribution of empty categories; resumptive pronoun constructions; parametric varia-

tion in movement constructions; LF WH-movement; filters; reconstruction; parasitic gaps; barriers theory; control theory; null subject parameter.

207. Semantic Theory II. (4) Lecture, four hours. Requisites: courses C180 or C208, 200C. Survey of current approaches to model-theoretic semantics and its relation to current linguistic theory. Approaches include generalized categorial grammars, Montague grammar, Boolean-based systems, generalized quantifier theory, logical form. Letter grading.

C208. Mathematical Structures in Language I. (5) Lecture, four hours; discussion, one hour. Requisite: course 120B. Recommended: Philosophy 31. Prior mathematics knowledge not assumed. Mathematical introduction to phonology, syntax, and semantics. Elementary material on logic, sets, functions, relations, and trees. Concurrently scheduled with course C180. Graduate students expected to complete additional problem sets. S/U or letter grading.

209A. Computational Linguistics I. (5) Lecture, four hours; laboratory, one hour. Survey of recent work on natural language processing, including basic syntactic parsing strategies, with brief glimpses of semantic representation, reasoning, and response generation. S/U or letter grading.

209B. Computational Linguistics II. (5) Lecture, four hours; laboratory, one hour. Requisite: course 209A. Extensions of basic language processing techniques to natural language processing. Recent models of syntactic, semantic, and discourse analysis, with particular attention to their linguistic sophistication and psychological plausibility. S/U or letter grading.

209C. Computational Semantics. (4) Lecture, four hours. Preparation: basic knowledge of semantics. Requisite: course 185A or 209A. Study of algorithms to compute and reason with meanings of sentences and texts. Phenomena such as anaphor resolution, presupposition projection, and tracking time, objects, and space to be covered. S/U or letter grading.

210A. Field Methods I. (4) Lecture, four hours. Preparation: grade of B or better in course 103 or in examination on practical phonetics. Requisites: courses 200A, 200B. Analysis of a language unknown to members of class from data elicited from a native speaker of the language. Term papers to be relatively full descriptive sketches of the language. May be repeated for credit with topic change. S/U or letter grading.

210B. Field Methods II. (4) Lecture, four hours. Requisite: course 210A in preceding term. Because different languages are investigated in different years, course 210B can only be taken as direct continuation of 210A in same year. When there are multiple sections, continuation must be in same section. May be repeated for credit with topic change. S/U or letter grading.

211. Intonation. (4) Lecture, two hours. Recommended prerequisite: course 204A. Survey of intonational theory for English and other languages, with particular emphasis on phonological models of intonation. Laboratory equipment used for recording and analyzing intonation, and students learn to transcribe intonational elements. Letter grading.

212. Learnability Theory. (4) Requisite: course C180 or C208. Survey of some of most significant results on capabilities of learners, given precise assumptions about their memory, time, and computational power, and precise assumptions about information provided by the environment.

213A. Grammatical Development. (4) Requisites: courses 200A, 200B. Recommended: course 130 or 233. Survey of theoretical perspectives and contemporary empirical research in development of syntax and other components of grammar, with particular emphasis on acquisition theory, linguistic theory, and issues of learnability.

213B. Brain Bases for Language. (4) Requisites: courses 200A, 200B. Recommended: course C135 or C235. Survey of theoretical perspectives and contemporary empirical research in neurological and cognitive bases for language, language development, and language breakdown.

213C. Linguistic Processing. (4) Requisites: courses 165B and/or 200B. Recommended: courses 132 or 232, 206. Survey of theoretical perspectives and

contemporary empirical research in human processing of language (comprehension and/or production), with emphasis on syntactic processing, ambiguity resolution, effects of memory load, and relationship between grammar and processor.

214. Survey of Current Syntactic Theories. (4) Requisite: course 206. Survey of several current syntactic theories, compared with one another and with theory discussed in course 206, from point of view of theories' relative descriptive and explanatory power.

215. Syntactic Typology. (2 or 4) Lecture, four hours. Requisite: course 200B. Current results in word-order universals; genetic classification of world's languages; cross-language properties of specific construction types, including relative clauses, passives, positive and negative coreference systems, agreement systems, deixis systems, and types of sentence complements. S/U or letter grading.

216. Syntactic Theory III. (4) Requisite: course 206. Selected topics on syntactic theories of anaphora and quantification from the following areas: typology of binding categories (pronouns, anaphors, etc.); theory of locality conditions in binding theory; parametric variation in binding; quantifier movement; existential quantification and unselective binding; strong and weak crossover; superiority; scope interactions; complex quantifier structures.

217. Experimental Phonology. (4) Lecture, four hours. Requisite: course 200A. Survey of experimental work that bears on claims about speakers' knowledge of phonology, including theories of lexicon, relation between perception and phonology, and universal markedness relations. Letter grading.

218. Mathematical Structures in Language II. (4) Lecture, four hours. Requisite: course C180 or C208. In-depth study of generalized quantifier theory; selected topics from distinctive feature theory, formal syntax, partial orders and lattices, formal language theory, variable binding operators. May be repeated for credit with consent of instructor. S/U or letter grading.

219. Phonological Theory III. (4) Lecture, four hours. Requisite: course 201. Current research and issues in phonological theory. Topics include structure of phonological representations, relations between representations, architecture of grammar, and explanations for phonological typology. Letter grading.

220. Linguistic Areas. (4) Requisites: courses 120A, and 120B or 127. Recommended: courses 165A or 200A, 165B or 200B. Analysis and classification of languages spoken in a particular area (e.g., Africa, the Balkans, South Asia, Southeast Asia, Australia, Aboriginal North America, Aboriginal South America, Far East, etc.). May be repeated for credit with topic change.

225. Linguistic Structures. (4) Lecture, four hours. Requisites: courses 120A, and 120B or 127. Recommended: courses 165A or 200A, 165B or 200B. Phonological and grammatical structure of a selected language and its genetic relationships to others of its family. May be repeated for credit with topic change. S/U or letter grading.

C228A-C228B. Romance Syntax: French. (4-4) (Formerly numbered CM228A-CM228B.) Lecture, four hours. Preparation: some knowledge of French (or one Romance language). Enforced requisite: course 120B. Course C228A is enforced requisite to C228B. Aspects of structure of French language, with emphasis on properties of construction not found in English. Concurrently scheduled with course C128A-C128B. S/U or letter grading.

230. History of Linguistics. (4) Requisites: courses 200A, 200B. Aspects of history of linguistics. Different course offerings may deal with different areas of linguistics (e.g., phonology, syntax) or with different historical periods. May be repeated for credit with topic change.

232. Language Processing. (5) Lecture, four hours; laboratory, one hour. Central issues in language comprehension and production, with emphasis on how theories in linguistics inform processing models. Topics include word understanding (with emphasis on spoken language), parsing, anaphora and inferenc-

ing, speech error models of sentence production, and computation of syntactic structure during production. S/U or letter grading.

233. Language Development. (5) Lecture, four hours. Requisites: courses 20, 120A, 120B. Survey of research and theoretical perspectives in language development in children. Discussion and examination of child language data from English and other languages. Emphasis on universals of language development. Topics include infant speech perception and production, development of phonology, morphology, syntax, and word meaning. S/U or letter grading.

C235. Neurolinguistics. (5) Lecture, four hours; discussion, one hour. Requisites: courses 1 or 20, and 130. Examination of relationship between brain, language, and linguistic theory, with evidence presented from atypical language development and language disorders in the mature brain. Topics include methodologies to investigate normal and atypical hemispheric specialization for language and children and adults with acquired and/or congenital language disorders. Concurrently scheduled with course C135. Graduate students expected to read more advanced neurolinguistic literature and produce research papers of greater depth. S/U or letter grading.

236. Computational Phonology. (4) Lecture, four hours. Introduction to computational models of phonology and phonological acquisition. Topics include finite state machines, probabilistic automata, over-constrained models, dynamic programming methods. Letter grading.

237. Linguistic Methods Laboratory. (4) Laboratory, four hours. Variable content, with topics such as computer implementation of linguistic models, corpus studies, experimental methods for linguistic data collection, statistical analysis of results. May be repeated for credit. Letter grading.

M238. Analyzing Historical Texts. (4) (Same as History M266C.) Seminar, four hours. Designed for graduate students. Analysis of linguistic structure and ethnohistorical context of legal and other documents written by native-speaking scribes and translators. Topics include paleographic technique and text analysis software. May be repeated for credit. S/U grading.

C244. Bilingualism and Second Language Acquisition. (5) Lecture, four hours; discussion, one hour. Requisites: courses 120A, 120B, 130. Introduction to study of childhood bilingualism and adult and child second language (L2) acquisition, with focus on understanding nature of L2 grammar and grammatical processes underlying L2/bilingual acquisition. Discussion of neurolinguistic and social aspects of bilingualism. Concurrently scheduled with course C140. Graduate students expected to read more advanced literature, do in-class presentation, and submit graduate-level term paper. S/U or letter grading.

M246C. Topics in Linguistic Anthropology. (4) (Same as Anthropology M241.) Problems in relations of language, culture, and society. May be repeated for credit.

251A. Topics in Phonetics and Phonology. (4) Seminar, four hours. Requisite: course 200A. Course 201, 203, or 204A may be required. Specialized topics in phonetics and phonology. Meets with course 251B. May be repeated for credit. Letter grading.

251B. Topics in Phonetics and Phonology. (2) Seminar, four hours. Requisite: course 200A. Course 201, 203, or 204A may be required. Specialized topics in phonetics and phonology. May not be applied toward M.A. or Ph.D. degree requirements. Meets with course 251A. May be repeated for credit. S/U grading.

252A. Topics in Syntax and Semantics. (4) Lecture, four hours. Requisite: course 200B. Course 206, 207, 214, 215, or 216 may be required. Specialized topics in syntax and semantics. Meets with course 252B. May be repeated for credit.

252B. Topics in Syntax and Semantics. (2) Lecture, four hours. Requisite: course 200B. Course 206, 207, 214, 215, or 216 may be required. Specialized topics in syntax and semantics. May not be applied toward M.A. or Ph.D. degree requirements. Meets with course 252A. May be repeated for credit. S/U grading.

253A. Topics in Language Variation. (4) Requisite: course 110. Course 202 may be required. Specialized topics in language variation. Meets with course 253B. May be repeated for credit.

253B. Topics in Language Variation. (2) Requisite: course 110. Course 202 may be required. Specialized topics in language variation. May not be applied toward M.A. or Ph.D. degree requirements. Meets with course 253A. May be repeated for credit. S/U grading.

254A. Topics in Linguistics. (4) Seminar, four hours. Requisites: courses 200A, 200B. Course 201, 202, 203, 204A, 205, 206, 207, C208, 209A, 209B, 212, 213A, 213C, 214, 215, 216, or 218 may be required. Individual proseminars on topics such as child language, sociolinguistics, neurolinguistics, computational linguistics, psycholinguistics, etc. Meets with course 254B. May be repeated for credit. Letter grading.

254B. Topics in Linguistics. (2) Seminar, four hours. Requisites: courses 200A, 200B. Course 201, 202, 203, 204A, 205, 206, 207, C208, 209A, 209B, 212, 213A, 213C, 214, 215, 216, or 218 may be required. Individual proseminars on topics such as child language, sociolinguistics, neurolinguistics, computational linguistics, psycholinguistics, etc. May not be applied toward M.A. or Ph.D. degree requirements. Meets with course 254A. May be repeated for credit. S/U grading.

256A. Topics in Phonetics and Phonology II: Proseminar. (4) Seminar, four hours. Requisite: course 200A. Course 201, 203, or 204A may be required. Specialized topics in phonetics and phonology. May be repeated once for credit. Meets with course 251A. In Progress grading (credit to be given only on completion of course 256B).

256B. Topics in Phonetics and Phonology II: Proseminar. (2) Seminar, two hours. Requisite: course 256A. Specialized topics in phonetics and phonology. May be repeated once for credit. Letter grading.

257A. Topics in Syntax and Semantics II: Proseminar. (4) Seminar, four hours. Requisite: course 200B. Course 206, 207, 214, 215, or 216 may be required. Specialized topics in syntax and semantics. May be repeated once for credit. Meets with course 252A. In Progress grading (credit to be given only on completion of course 257B).

257B. Topics in Syntax and Semantics II: Proseminar. (2) Seminar, two hours. Requisite: course 257A. Specialized topics in syntax and semantics. May be repeated once for credit. Letter grading.

258A. Topics in Language Variation II: Proseminar. (4) Seminar, four hours. Requisite: course 110. Course 202 may be required. Specialized topics in language variation. May be repeated once for credit. Meets with course 253A. In Progress grading (credit to be given only on completion of course 258B).

258B. Topics in Language Variation II: Proseminar. (2) Seminar, two hours. Requisite: course 258A. Specialized topics in language variation. May be repeated once for credit. Letter grading.

259A. Topics in Linguistics II: Proseminar. (4) Seminar, four hours. Requisites: courses 200A, 200B. Course 201, 202, 203, 204A, 205, 206, 207, C208, 209A, 209B, 212, 213A, 214, 215, 216, or 218 may be required. Individual proseminars on topics such as child language, sociolinguistics, neurolinguistics, computational linguistics, psycholinguistics, etc. May be repeated once for credit. Meets with course 254A. In Progress grading (credit to be given only on completion of course 259B).

259B. Topics in Linguistics II: Proseminar. (2) Seminar, two hours. Requisite: course 259A. Individual proseminars on topics such as child language, sociolinguistics, history of linguistic theory, neurolinguistics, languages of world, psycholinguistics, etc. May be repeated once for credit. Letter grading.

260A-260B-260C. Seminars: Phonetics. (2 or 4 each) Seminar, three hours. Each course may be taken independently for credit. May not be applied toward M.A. or Ph.D. degree requirements when taken for 2 units. May be repeated for credit. S/U grading.

261A-261B-261C. Seminars: Phonology. (2 or 4 each) Seminar, three hours. Each course may be taken independently for credit. May not be applied toward M.A. or Ph.D. degree requirements when taken for 2 units. May be repeated for credit. S/U grading.

262A-262B-262C. Seminars: Syntax and Semantics. (2 or 4 each) Seminar, three hours. Each course may be taken independently for credit. May not be applied toward M.A. or Ph.D. degree requirements when taken for 2 units. May be repeated for credit. S/U grading.

263A-263B-263C. Seminars: Language Variation. (2 or 4 each) Seminar, three hours. Each course may be taken independently for credit. May not be applied toward M.A. or Ph.D. degree requirements when taken for 2 units. May be repeated for credit. S/U grading.

264A-264B-264C. Seminars: Special Topics in Linguistic Theory. (2 or 4 each) Seminar, three hours. Special topics may include child language, neurolinguistics, psycholinguistics, sociolinguistics, etc. Each course may be taken independently for credit. May not be applied toward M.A. or Ph.D. degree requirements when taken for 2 units. May be repeated for credit. S/U grading.

265A-265B-265C. American Indian Linguistics Seminar. (1 or 4 each) Seminar, two hours; fieldwork, four hours. Presentation of research on American Indian linguistics. Each course may be taken independently for credit. May not be applied toward M.A. or Ph.D. degree requirements when taken for 1 unit. May be repeated for credit. S/U grading.

275. Linguistics Colloquium. (4) Preparation: completion of M.A. requirements. Varied linguistic topics, generally presentations of new research by students, faculty, and visiting scholars. S/U grading.

276. Linguistics Colloquium. (No credit) Designed for graduate students. Same as course 275, but taken without credit by students not presenting a colloquium. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

403. Practical Phonetics Training. (1) Extensive practice in production, perception, and transcription of sounds from a wide range of languages. Concurrently scheduled with practical sections of course 103. S/U grading.

411A-411B. Research Orientation. (2-2) Designed for graduate students. Sequence of lectures by department faculty to acquaint new graduate students with research directions and resources of department and elsewhere on campus. May not be applied toward M.A. or Ph.D. degree requirements. S/U grading.

422. Practicum: Phonetic Data Analysis. (2) Designed for graduate students. Workshop in examination of phonetic data, such as sound spectrograms, oscillographic records, and computer output. May not be applied toward M.A. or Ph.D. degree requirements. S/U grading.

444. M.A. Thesis Preparation Seminar. (4) Student presentations, two hours. Student presentations of proposed topics for M.A. theses, with discussion and criticism by other students and faculty. May not be applied toward M.A. or Ph.D. degree requirements. S/U grading.

495. College Teaching of Linguistics. (2) Seminar, to be arranged. Designed for graduate students. Required of all new teaching assistants. Seminars, workshops, and apprentice teaching. Selected topics, including curriculum development, various teaching strategies and their effects, teaching evaluation, and other topics on college teaching. Students receive unit credit toward full-time equivalence but not toward any degree requirements. S/U grading.

501. Cooperative Program. (2 to 8) Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair,

and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596A. Directed Studies. (1 to 8) Preparation: completion of all undergraduate deficiency courses. Directed individual study or research. May be applied toward M.A. course requirements. May be repeated for credit. S/U grading.

596B. Directed Linguistic Analysis. (1 to 8) Preparation: completion of M.A. degree requirements. Intensive work with native speakers by students individually. May be repeated for credit. S/U grading.

597. Preparation for M.A. Comprehensive and Ph.D. Qualifying Examinations. (1 to 8) Preparation: at least six graduate linguistics courses. May be taken only in terms in which students expect to take comprehensive or qualifying examinations. May not be applied toward M.A. course requirements. May be repeated for credit. S/U grading.

598. Research for M.A. Thesis. (1 to 8) Research and preparation of M.A. thesis. May not be applied toward M.A. course requirements. May be repeated for a maximum of 8 units. S/U grading.

599. Research for Ph.D. Dissertation. (1 to 16) Preparation: advancement to Ph.D. candidacy. May not be applied toward Ph.D. course requirements. May be repeated for credit. S/U grading.

MANAGEMENT

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Sushil Bikhchandani, Ph.D.
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Bhagwan Chowdhry, Ph.D.
Charles J. Corbett, Ph.D. (*Joseph Jacobs Professor of Entrepreneurial Studies*)
Samuel A. Culbert, Ph.D.
Michael R. Darby, Ph.D. (*Warren C. Corder Professor of Money and Financial Markets*)
Magali A. Delmas, Ph.D.
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Mark S. Grinblatt, Ph.D. (*J. Clayburn La Force Professor of Management*)
Dominique M. Hanssens, Ph.D. (*Bud Knapp Marketing Professor*)
Carla Hayn, Ph.D.
John S. Hughes, Ph.D. (*Ernst and Young Professor of Accounting*)
Sanford M. Jacoby, Ph.D. (*Howard Noble Professor of Management*)
Uday S. Karmarkar, Ph.D. (*Los Angeles Times Professor of Management Strategy and Policy*)
Barbara S. Lawrence, Ph.D.

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Carol A. Scott, Ph.D.
Avanidhar Subrahmanyam, Ph.D. (*Goldyne and Irwin Hearsh Professor of Money and Banking*)
E. Burton Swanson, Ph.D.
Christopher S. Tang, Ph.D. (*Edward W. Carter Professor of Business Administration*)
Walter N. Torous, Ph.D. (*Lee and Seymour Graff Endowed Professor*)
Brett M. Trueman, Ph.D.
Harold M. Williams, J.D.
Bruce G. Willison, M.B.A.

Professors Emeriti

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Donald Erlenkotter, Ph.D.
Eric G. Flamholtz, Ph.D.
Arthur M. Geoffrion, Ph.D.
Glenn W. Graves, Ph.D.
Alfred E. Hofflander, Ph.D.
James R. Jackson, Ph.D.
Harold H. Kassarian, Ph.D.
Larry J. Kimbell, Ph.D.
Archie Kleingartner, Ph.D.
J. Clayburn La Force, Jr., Ph.D.
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Alfred Nicols, Ph.D.
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R. Clay Sprowls, Ph.D.
George A. Steiner, Ph.D., Litt.D.
James Q. Wilson, Ph.D. (*James A. Collins Professor Emeritus of Management*)

Associate Professors

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Nico Voigtländer, M.Sc., Ph.D.
Liu Yang, Ph.D.
Maia J. Young, Ph.D.
Robert Zeithammer, Ph.D.

Senior Lecturers

Ariella D. Herman, Ph.D.
David S. Ravetch, M.A.
Robert S. Spich, Ph.D.

Lecturers

Stephen D. Cauley, Ph.D.
Gonzalo Freixes, J.D.
Julie Ann Gardner-Treloar, M.B.A.
Jane Guerin, J.D.
Gordon L. Klein, J.D.
Danny S. Litt, M.B.A.
Eric H. Sussman, M.B.A.

Adjunct Professors

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Jeffrey A. Dubin, Ph.D.
Janis S. Forman, Ph.D.
Robert F. Foster, M.B.A.
George T. Geis, Ph.D.
James R. Stengel, M.B.A.
Victor C. Tabbush, Ph.D.

Adjunct Assistant Professors

Anke M. Audenaert, M.A.
Jason C. Hsu, M.Sc., Ph.D.

Scope and Objectives

The John E. Anderson Graduate School of Management at UCLA offers a variety of programs leading to graduate degrees at the master's and doctoral levels. These include an academic (M.S.) and professional (M.B.A.) master's and a Master of Financial Engineering (M.F.E.), as well as an Executive M.B.A. Program designed for working managers who are moving from specialized areas into general management and a three-year Fully Employed M.B.A. Program for emerging managers. The school also offers a part-time dual Executive M.B.A. degree with the National University of Singapore (NUS) Business School that prepares participants for top positions in organizations around the world. A Ph.D. in Management is also offered, as are a certificate Executive

Program and research conferences and seminars for experienced managers.

The school offers an undergraduate minor in Accounting and several undergraduate courses in management. Enrollment in these courses, although open to all University students who have completed the requisites, is limited. The school limits the number of courses taken by undergraduate students to 11.

Undergraduate Study

Accounting Minor

The Accounting minor provides students with a comprehensive accounting background; admission is competitive and based on overall UCLA grade-point average, grade-point average in preadmission courses, and the grades in Management 1A and 1B. Decisions on admission to the minor are made by the Anderson School Accounting Area. Applications are accepted in Fall, Winter, and Spring Quarters. Nontransfer students must apply subsequent to completing 90 units. Transfer students must apply after completing two academic quarters (excluding Summer Sessions) at UCLA.

To enter the minor, students must (1) have a minimum cumulative UCLA grade-point average of 3.2, (2) complete all required preadmission courses with a minimum course grade-point average of 3.2, and (3) receive grades of B or better in Management 1A and 1B. Repetition of more than one preadmission course or of any preadmission course more than once results in automatic denial of admission to the minor. Satisfying these requirements does not guarantee admission to the program, as only a limited number of students are admitted each year. For further information, see <http://www.anderson.ucla.edu/x25205.xml>.

Required Preadmission Courses (31 units minimum): Economics 1, 2, 41 or Statistics 10 or 11, Management 1A and 1B (former course 100 taken at UCLA may be substituted), Mathematics 3A or 31A, 3B or 31B or 31E, one Writing II course. If Management 1A and 1B are not taken at UCLA, students must complete courses 120A and 122.

Required Upper Division Courses (36 units): Management 120A, 120B, 122, 127A, and three courses from 108, 123, 124, 126, 127B, 130A.

Transfer credit for any of the above courses is subject to department approval and is considered only for non-management courses. Only one upper division course repeat is allowed.

Each minor course must be taken for a letter grade; each management course must be completed at UCLA with a grade of C or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/>

gasaa/library/pgmrqintro.htm. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The John E. Anderson Graduate School of Management offers Master of Science (M.S.), Candidate in Philosophy (C.Phil.), and Doctor of Philosophy (Ph.D.) degrees in Management, the Master of Business Administration (M.B.A.) degree, and the Master of Financial Engineering (M.F.E.) degree. The school also offers the Executive M.B.A. Program (EMBA) and the M.B.A. for the Fully Employed (FEMBA).

Ten concurrent degree programs (Management M.B.A./Computer Science M.S., Management M.B.A./Dentistry D.D.S., Management M.B.A./Latin American Studies M.A., Management M.B.A./Law J.D., Management M.B.A./Library and Information Science M.L.I.S., Management M.B.A./Medicine M.D., Management M.B.A./Nursing M.S.N., Management M.B.A./Public Health M.P.H., Management M.B.A./Public Policy M.P.P., and Management M.B.A./Urban Planning M.U.R.P.) are also offered.

Management

Lower Division Courses

1A-1B. Principles of Accounting. (4-4) Lecture, three hours; discussion, one hour. Not open to freshmen. P/NP or letter grading. **1A.** Introduction to financial accounting principles, including preparation and analysis of financial transactions and financial statements. Valuation and recording of asset-related transactions, including cash, receivables, marketable securities, inventories, and long-lived assets. Current liabilities. **1B.** Requisite: course 1A. Completion of balance sheet with emphasis on debt and equity, including in-depth introduction to time value of money concepts. Introduction to partnership and individual income tax accounting.

88. Lower Division Seminar: Special Topics in Management. (1 to 4) Seminar, three hours; outside study, nine hours. Requisite: satisfaction of Entry-Level Writing requirement. Variable topics seminar that examines specific issues or problems and ways that professionals in management approach study of them. Students define, prepare, and present their own research projects with guidance of professional school faculty member. Letter grading.

Upper Division Courses

107. Business Communications. (4) Process and discipline of effective spoken presentations. Examination and application of classical and contemporary thinking on substance, structure, and delivery of messages. Elements of graphic presentation of data and presentation technology. Students design and deliver informative and persuasive presentations on key management issues. Critique of all efforts; certain efforts to be videotaped for review. P/NP or letter grading.

108. Business Law. (4) Lecture, three hours. Not open to freshmen. Essentials of contracts, agency, partnerships, corporations, and other select areas of law in a business environment. P/NP or letter grading.

109. International Business Law. (4) Lecture, three hours. Recommended requisite: course 108. Study of international business legal environment, including general overview of international laws and organizations and comprehensive review of U.S. regulations of international business transactions. Special emphasis on international litigation, commercial transactions, regulation of investments, multinational corporations, and international banking. P/NP or letter grading.

M118A. Complexity Science for Social Systems. (4) (Formerly numbered 118A.) (Same as Human Complex Systems M130.) Lecture, four hours. Limited to juniors/seniors. Introduction to (1) complexity science as applied to social behavior and (2) agent-based computational modeling. Use of complexity science to bridge old and new conceptions of social science. Newtonian science, neoclassical economics, and old-style approaches to social science all build on assumptions that all basic agents comprising phenomena (atomic particles, atoms, molecules, organisms, people, groups, firms) are homogeneous and go forward in time under equilibrium conditions interspersed with occasional disequilibrium periods. Letter grading.

120A. Intermediate Financial Accounting I. (5) Lecture, four hours. Requisite: course 1B. Intermediate-level course in theory and practice of financial accounting. Underlying concepts of asset valuation and income measurement. Measurement and reporting of current and long-term assets, including cash and marketable securities, inventories, plant assets and depreciation, and intangibles. P/NP or letter grading.

120B. Intermediate Financial Accounting II. (5) Lecture, four hours. Requisite: course 120A. Intermediate-level course in theory and practice of financial accounting. Underlying concepts of liability recognition and expense, including leases, bonds, and pensions. Shareholder's equity, including earnings per share. Accounting for changing prices. P/NP or letter grading.

122. Management Accounting. (4) Lecture, three hours. Requisites: course 1B, one statistics course. Nature, objectives, and procedures of cost accounting and control; job costing and process costing; accounting for manufacturing overhead; cost budgeting; cost reports; joint-product costing; distribution cost; standard costs; differential cost analysis; profit-volume relationships and break-even analysis. P/NP or letter grading.

123. Auditing. (4) Lecture, three hours. Requisite: course 120B. Comprehensive study of procedures used in verification of financial statements and related information, including ethical, legal, and other professional issues. Auditing of a complete set of financial statements. P/NP or letter grading.

124. Advanced Accounting. (4) Lecture, three hours. Requisite: course 120B. Specialized accounting topics in business combinations, consolidated financial statements, branch accounting, leveraged buyouts, Securities and Exchange Commission, foreign currency transactions, translation of foreign financial statements, partnership ownership changes and liquidations, governmental accounting, and bankruptcy. P/NP or letter grading.

125. Special Applications in Accounting. (4) Requisite: course 120B. Recommended: course 122. Designed for seniors. Use of "Strategic Management," a computer program that simulates experience on a senior management team. Under real and sometimes adverse economic conditions, teams must make strategic and tactical decisions, evaluate performance results, and compete for key resources, market share, and business opportunities. Emphasis on theories of return on equity, product life cycles, product line margin analysis, issuing debt versus equity, and other topics that allow students to apply accounting principles learned in previous courses. P/NP or letter grading.

126. Financial Statement Analysis. (4) Lecture, four hours. Requisite: course 120B. Comprehensive study of concepts and procedures used to interpret and analyze balance sheet, income statement, and statement of cash flows. Calculation and interpretation of financial ratios and credit analysis. Valuation theory using both discounted cash flows and residual income model. P/NP or letter grading.

127A. Tax Principles and Policy. (4) Lecture, three hours. Requisite: course 1B. Study of fundamental income tax problems encountered by individuals and other entities in analyzing business, investment, employment, and personal decisions. Special emphasis on role of tax rules in capital transactions and decision making. P/NP or letter grading.

127B. Corporate and Partnership Taxation. (4) Lecture, three hours. Requisite: course 1B. Recommended: course 127A. Study of tax issues arising in forma-

tion, operation, and termination of corporations and partnerships. Special emphasis on closely held enterprises, including S corporations. P/NP or letter grading.

127C. International Taxation. (4) Lecture, three hours. Recommended requisite: course 127A. Study of two principle areas of international taxation from U.S. regulatory perspective: taxation of American citizens and companies conducting business in international arena (outbound transactions) and taxation of foreign nationals and companies who invest or conduct business in the U.S. (inbound transactions). P/NP or letter grading.

128. Special Topics in Accounting. (4) Lecture, three hours. Requisite: course 120B. Selected topics in public accounting, including mergers and acquisitions, public-company status and going-public process, role of partner, serving entrepreneurial clients, and fund accounting. Discussion of case study of current interest in accounting profession. Business plan preparation. P/NP or letter grading.

130A. Basic Managerial Finance. (4) Lecture, three hours. Requisites: course 1B, one statistics course. Study of financial decision making by business firms, with emphasis on applications of economic and accounting principles in financial analysis, planning, and control. Extensive use of problems and cases to illustrate varied analytical techniques employed in decision making. P/NP or letter grading.

130B. Advanced Managerial Finance. (4) Lecture, three hours. Requisite: course 130A. Analysis of capital budgeting and working capital management. Review of long-term financing through security markets and lease contracts. Management of financial risk using options, futures, and forward contracts. Study of merger and acquisition processes and reorganization under bankruptcy laws. P/NP or letter grading.

133. Investment Principles and Policies. (4) Lecture, three hours. Requisite: course 130A. Principles underlying investment analysis and policy; salient characteristics of governmental and corporate securities; policies of investment companies and investing institutions; relation of investment policy to money markets and business fluctuations; security price-making forces; construction of personal investment programs.

140. Elements of Production and Operations Research. (4) Lecture, four hours. Requisites: Mathematics 3A, 3B, 3C, Statistics 11. Principles and decision analysis related to effective utilization of factors of production in manufacturing and nonmanufacturing activities. Analytical models and methods for allocation, transportation, inventories, replacement, scheduling, and facilities design. P/NP or letter grading.

150. Elements of Industrial Relations. (4) Principles and methods of effectively utilizing human resources in organizations. Relationship between social, economic, and other environmental factors and current problems in industrial relations.

175. Elements of Real Estate and Urban Land Economics. (4) Examination of business decision making as related to logical forces shaping cities and influencing real estate market functions and land uses. Emphasis on decision making as it relates to appraising, building, financing, managing, marketing, and using urban property.

180. Special Topics in Management. (4) Lecture, four hours. Topics of special interest to undergraduate students. Specific subjects may vary each term depending on particular interest of instructors or students. May be repeated for credit. P/NP or letter grading.

182. Leadership Principles and Practice. (4) Knowledge and skills leading to effectiveness in interpersonal relations. Understanding oneself as a leader and others as individuals and as members of working groups. Understanding of group process, including group leadership. Lectures and "sensitivity training" laboratory.

195. Community or Corporate Internships in Management. (2 to 4) Tutorial, to be arranged. Limited to juniors/seniors. Internship in supervised setting in community agency or business. Students meet on regular basis with instructor and provide periodic re-

ports of their experience. May be repeated for maximum of 8 units. Individual contract with supervising faculty member required. P/NP or letter grading.

199. Directed Research in Management. (2 to 8) Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research or investigation of selected research topic under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200. Advanced Microeconomics. (4) Seminar, three hours. Requisite: course 405. Economist's approach to organization and competitive interaction. Topics include game theory, threat credibility, incentive contracts, information advantages, and entry deterrence.

201A. Business Forecasting: Turning Numbers into Knowledge. (4) Discussion, three hours. Preparation: familiarity with linear regression. Examination of one approach to analytical thinking—forcing numerical and textual data into carefully formulated alternative models. Data studied include macroeconomic variables (growth, inflation, unemployment, interest rates, and exchange rates), industry data, and firm data. Letter grading.

201B. Econometrics and Business Forecasting. (4) Lecture, three hours. Development of standard topics in applied econometric modeling. Emphasis on assumptions underlying classical normal linear regression model, special problems in application, and interpretation of results. Practical applications extensively developed in student projects.

202A. Regulation. (4) Lecture, three hours. Requisite: course 405. Reasons for government intervention in theory and practice. Effect of regulation on business. How regulation and deregulation occur. Areas include public utilities, banking, pollution, and the political process.

202B. Analytics of Competitive Strategy. (4) Discussion, three hours. Requisites: courses 402, 405. Development and analysis of strategies to maximize value in competitive and cooperative situations. Problems include competitive bidding, tacit collusion, and strategies in repeated settings.

203A. Economics of Decision. (4) Discussion, three hours. Preparation: basic probability theory. Basics of single-person decision theory and introduction to non-cooperative game theory. Examination in some detail of von Neumann/Morgenstern expected utility theory. Other topics in decision theory include subjective expected utility theory and departures from expected utility behavior. S/U or letter grading.

203B. Economics of Information. (4) Discussion, three hours. Preparation: rudiments of economic theory of the firm, calculus, probability, and statistics. Requisite: course 203A. Optimal decision and information rules. Amount, cost, and value of information. Risk aversion, stochastic dominance, and their impact on economic decisions in a stochastic environment.

205A. International Business Economics. (4) Requisite: course 405. International business environment, international economic institutions, national and regional trade policies and developments, trends in foreign markets, and international monetary problems, studied for their influence on organization and operation of the international corporation.

205B. Comparative Market Structure and Competition. (4) Requisite: course 205A. Comparative study of public policies toward competition, market structures, and competitive practices in key industries in selected countries.

205C. Business Forecasting for Foreign Economies. (4) Requisite: course 201A. Forecasting changes in business activity, population, industrial structure, productivity, Gross Domestic Product and its components for selected countries. S/U or letter grading.

207. Resource Administration of Nonmarket Activities. (4) Seminar, three hours. Requisite: course 405. Examination of behavior of managers in profit vs. not-for-profit sectors to determine critical variables

that explain observed differences in behavior. Use of methodology of microeconomics, particularly utility maximization.

208. Public Services and Private Functions. (4) Requisites: courses 405, 406. Sources and uses of federal, state, and local revenues and their impact on public and private resource allocation. Examination of proper roles of government and private sector in financing and provision of public goods and services.

M209A-209B. Elements of Economic Organization. (1 to 6 each) (Formerly numbered M209.) (Same as Law M239.) Lecture, three hours. Preparation: familiarity with basic vocabulary and concepts, including basic principles of accounting and valuation. Course M209A is enforced requisite to 209B. Advanced course in business organization. Examination of structure of business transactions and allocation of control, risk, and return. Topics include venture capital investments, debt and loan agreements, employment agreements, distribution and marketing agreements (including franchising), motion picture production/finance/distribution agreements, and joint ventures. Assigned reading and focus on documents that incorporate terms of business transactions of deals. In Progress (M209A) and S/U or letter (209B) grading.

210A. Mathematical Programming. (4) Discussion, three hours. Preparation: linear algebra. Comprehensive development of theory and computational methods of linear programming, with applications to a variety of areas. S/U or letter grading.

210B. Applied Stochastic Processes. (4) Discussion, three hours. Preparation: probability theory at level of Electrical Engineering 131A or Mathematics 170A or Statistics 100A. Topics include Poisson processes, renewal theory, Markov chains, and Markov decision processes, with emphasis on problem formulation, decision making, and characterization of optimal policies. Specific applications include traditional operations research topics (inventory, queueing, maintenance, reliability), as well as several in microeconomics (search and research and development). S/U or letter grading.

210C. Network Flows and Integer Programming. (4) Discussion, three hours. Preparation: linear programming. Survey course to (1) lay foundations for more advanced study of graphs, network flow models, and integer programming models and their applications, (2) establish connections between these technical foundations and real problems drawn from many areas of management, and (3) build professional skills needed to apply these tools. S/U or letter grading.

211A. Nonlinear Mathematical Programming. (4) Discussion, three hours. Requisites: course 210A, Mathematics 32A. Theory, methods, and applications of optimization for situations where models must be nonlinear, with special emphasis on case of "convexity." Topics include classical approaches to optimization, theory of optimality and duality, main computational approaches, and survey of currently available computer software. S/U or letter grading.

211B. Large-Scale Mathematical Programming. (4) Discussion, three hours. Requisite: course 210A. Theory, methods, and applications of optimization for situations where models are large and have special structure, as is often the case in real applications. Focus on ways of exploiting special structures with combinatorial, multidivisional, and stochastic aspects in pursuit of computational tractability. S/U or letter grading.

212A. Decision Sciences Models I. (4) Lecture, four hours. Requisites: course 407, Mathematics 31B. Broad survey of deterministic models of decision sciences, including solution methods and applications management. Solution methods include linear programming, network optimization, integer programming, nonlinear programming. Application areas include corporate planning, finance, marketing, production and operations management, distribution, and project management. S/U or letter grading.

212B. Decision Sciences Models II. (4) Lecture, four hours. Requisites: courses 402, 407. Broad survey of nonlinear, time-staged, and probabilistic mod-

els for managerial decision making. Application areas include finance, marketing, facilities design, production, and energy systems. S/U or letter grading.

213A. Intermediate Probability and Statistics. (4) Discussion, three hours. Preparation: working knowledge of differential and integral calculus of several variables, basic probability theory, and univariate mathematical statistics. Introduction to probability theory and hypothesis testing as applied to management. SAS programs used in this course and its sequels. S/U or letter grading.

213B. Statistical Methods in Management. (4) Discussion, three hours. Requisite: course 402. Introduction to parameter and interval estimation, simple and multiple linear regression and correlation, fixed, random, and mixed effects analysis of variance models and nonparametric statistics, all as they apply to management studies. S/U or letter grading.

213C. Introduction to Multivariate Analysis. (4) Discussion, three hours. Preparation: working knowledge of differential and integral calculus of several variables, basic probability theory, and univariate mathematical statistics. Introduction to use of multivariate models in management research to organize and represent information; interpretation of coefficients from multivariate exploratory models (e.g., principal axes and factor analysis models); survey of multivariate statistical procedures (e.g., multiple discriminant analysis, multivariate analysis of variance, canonical correlation, and confirmatory factor models). S/U or letter grading.

215. Negotiations Analysis. (4) Discussion, three hours. Series of negotiation exercises to foster development of students' negotiation skills and experience. Use of economic and game-theoretic concepts in debrief to gain insight and develop framework for finding the broad negotiation principles applicable. S/U or letter grading.

215D. Time-Series Analysis. (4) Discussion, three hours. Requisite: course 213B. Univariate Box-Jenkins analysis, transfer functions, and intervention analysis. Relationship between econometric and time-series models, Granger causality, multiple time-series analysis. Numerous computer applications in modeling and forecasting. S/U or letter grading.

216A. Simulation of Modeling and Analysis. (4) Discussion, three hours. Preparation: probability theory, mathematical statistics, analytical modeling. Development of computer simulation models for managerial decision making under uncertainty or complex dynamics, with emphasis on simulation methodology such as design, validation, operating procedures, and interpretation of results. Application areas include finance, marketing, and production. S/U or letter grading.

217A. Decision Analysis. (4) Lecture, three hours. Requisite: course 402. Managerial decision making occurs in presence of uncertainty which can be about events over which no individual has any control or it can be about what other individuals will do. Framework provided for structuring and analyzing such decisions, with application of framework to such scenarios as product development, litigation, business of treasure hunting, and bidding. S/U or letter grading.

217B. Game Theory. (4) Discussion, three hours. Requisites: courses 402, 405. Theory of games plays increasingly important role as source of clear language and concepts for analysis of policy problems in every area. Introduction to subject, with emphasis on interpretation and application of ideas to variety of practical issues in management and public policy, and in practical questions of ethics, fairness, and bargaining. S/U or letter grading.

218A. Selected Topics in Decisions, Operations, and Technology Management. (1 to 4) Discussion, three hours. Newly developing topics of interest to Ph.D. students. Topics have included reliability and optimal maintenance theory, large-scale distribution/inventory systems, and Markovian decision processes under uncertainty. May be repeated for credit. S/U or letter grading.

220. Corporate Financial Reporting. (4) Lecture, three hours. Requisite: course 403. In-depth treatment of significant corporate financial reporting issues to enhance understanding of financial statements and student ability to interpret and use information contained in these disclosures. Emphasis on economic substance of transactions. S/U or letter grading.

222. Management Accounting. (4) Lecture, three hours. Requisite: course 403. Nature and use of accounting data for management decisions. Economic rationale for management accounting techniques and limitations of such techniques. Topics include product costing, budgeting, cost control, forecasting, incentives, and performance evaluation. S/U or letter grading.

224. Topics in Business Law. (4) Lecture, three hours. Requisite: course 403. Topics-oriented course covering wide range of current legal issues that confront entrepreneurs and corporate managers. Topics include venture capital, business formation and integration, contracts, property rights, product marketing, employment, creditor claims, and bankruptcy. S/U or letter grading.

226. Special Advanced Topics in Accounting. (4) Lecture, three hours. Requisite: course 403. Examination of advanced topics in accounting that arise in business combinations and international accounting practices, including principles underlying consolidated financial statements, treatment of unconsolidated subsidiaries and affiliate investments, translation of foreign exchange, and valuation of derivatives for hedging exchange risk. S/U or letter grading.

227. Taxation and Management Decisions. (4) Lecture, three hours. Requisite: course 403. Examination of impact of taxes on decisions of businesses and investors. Effects of taxes on investment decisions, mergers and acquisitions, capital structure, dividend policies, and employee compensation. S/U or letter grading.

228. Financial Statement Analysis. (4) Lecture, three hours. Requisite: course 403. Examination of role of information contained in financial statements for assessing firm performance and estimating firm value. Consideration given to earnings manipulation, market efficiency, and evidence of anomalous pricing. S/U or letter grading.

229A. Special Topics in Accounting. (4) Lecture, three hours. Designed for Ph.D. students. Examination in depth of problems or issues of current concern in accounting, such as application of information economics and principal-agent model to accounting.

229B. Empirical Research in Accounting. (4) Lecture, three hours. Preparation: training in econometrics. Designed for Ph.D. students. Introduction to empirical accounting literature, focusing on role that accounting information plays in formation of capital market prices.

229X-229Y-229Z. Accounting Workshops. (1-1-2) Discussion, two hours. Designed for Ph.D. students. Intended to develop ability to critically evaluate research in fields relevant to study of accounting. Papers presented in colloquium format by leading scholars in accounting. Active participation and intellectual interchange encouraged through discussion of papers during colloquium. May be repeated for credit. S/U grading.

230. Theory of Finance. (4) Lecture, three hours. Requisite: course 408. Primary focus on valuation of corporate liabilities and other securities under uncertainty. Capital asset pricing model presented rigorously and compared with more recent theories of asset pricing such as arbitrage pricing theory and option pricing model, using empirical evidence. Secondary focus on analysis of problems in corporate finance such as optimal financing of the corporation and the market for corporate control. S/U or letter grading.

231A. Topics in Corporate Finance. (4) Lecture, three hours. Requisites: courses 230 (or 430), 408. Identifying and solving financial problems through use of cases. Application of financial theory and financial techniques to business problems, using written reports and classroom discussion. S/U or letter grading.

231B. Nonprofit Sector Financial Policy. (4) Lecture, three hours. Requisites: courses 408, 430. Identifying and solving financial problems for all types of nonprofit organizations, with attention to funds accounting, budgeting and control, investment decision making when market valuation cannot be used as criterion, and sources of funds for nonprofit organizations. Use of cases. S/U or letter grading.

231C. Corporate Valuation. (4) Lecture, three hours. Requisites: courses 408, 430. Lectures, discussions, and student presentations. Issues and analytical tools relevant for valuing projects, divisions, and corporations. Theories of discounted cash flow valuation (DCF) and relative valuation using market multiples. Theories of practice to value different projects, including IPO, mergers and acquisitions, divestitures, and private firms. Exploration of how real options affect investment decisions and how they can be identified and valued. Letter grading.

231D. Takeovers, Restructuring, and Corporate Governance. (4) Lecture, three hours. Requisites: courses 230 (or 430), 408. Process by which corporate control transactions take place; role of market for corporate control in leading to economic restructuring and shifts in resource allocation by corporations. Empirical evidence on economic and capital market reactions to control transactions and to defensive measures by management. Focus on interaction of strategic planning, firm value maximization, and investment decisions in life cycle of growth of firm. S/U or letter grading.

231E. Managing Finance and Financing Emerging Enterprises. (4) Lecture, three hours. Requisites: courses 230 (or 430), 403, 408. Designed for second-year graduate students. Emphasis on financial, control, and investment issues confronting rapidly growing companies in entrepreneurial settings. Consideration and selection of financing vehicles that may be appropriate to securing organizations' money requirements. S/U or letter grading.

232A. Security Analysis and Investment Management. (4) Lecture, three hours. Requisites: courses 230 (or 430), 408. Topics include security valuation, application of portfolio theory to investment decisions, performance evaluation, and basics of fixed income portfolio management strategies. S/U or letter grading.

232B. Fixed-Income Markets. (4) Lecture, three hours. Preparation: demonstrable training in statistics. Requisites: courses 230 (or 430), 408. Introduction to fixed-income markets: institutional arrangements in primary and secondary markets; description and analysis of various types of fixed-income instruments; valuation; fixed-income portfolio management; use of derivative instruments and dynamic investment strategies; asset securitization. S/U or letter grading.

232D. Option Markets. (4) Lecture, three hours. Requisites: courses 230 (or 430), 408. Organization and role of organized derivative markets, including listed and OTC options and futures: arbitrage and hedging relationships, valuation of derivative trading strategies, and innovations in derivative markets. Students learn fundamentals of hedging and spreading by playing option trading game and writing term paper analyzing their strategies. S/U or letter grading.

232E. Market and Credit Risk Management. (4) Lecture, three hours. Requisites: courses 408, 430. Discussion of regulatory environment for both market and credit risk management, data necessary to manage these risks, types of models used for risk management, types of securities and techniques for hedging market and credit risks, performance measurement of risk management systems, and other types of risks that affect risk management, such as operation risk, liquidity risk, commodity risk, weather risk, and model risk. Letter grading.

232F. Behavioral Finance. (4) Lecture, three hours. Requisites: courses 408, 430. Introduction to and explanation of evidence of anomalous return behavior found in U.S. equities markets. Presentation of some paradigms of stock price movements that are rooted in studies from psychology and explanation of trading activity in equity risk-return paradigm. Introduction to some psychological biases that researchers suspect are inherent to investors. Employment of some results

from psychology literature to explain irrationalities encountered in finance literature. Presentation of latest evidence on why individual investors trade and how individual and institutional investors form their portfolios. Letter grading.

233A. Money and Capital Markets. (4) Lecture, three hours. Requisites: courses 230 (or 430), 408. Application of interest theory and flow funds analysis to price determination process in markets for bonds, mortgages, stocks, and other financial instruments. Study of funds flow from credit markets. Analysis of costs of capital in individual industries. S/U or letter grading.

233B. Financial Institutions. (4) Lecture, three hours. Requisites: courses 230 (or 430), 408. Theory and practice of financial institutions and stock exchanges. Main topics include deposit insurance and regulation, international banking, market microstructure, and investment banking. S/U or letter grading.

234A. International Financial Markets. (4) Lecture, three hours. Requisites: courses 230 (or 430), 408. Conceptual understanding of foreign exchange market, Eurocurrency market, international bond market, and equity markets in various countries. Emphasis on underlying economic principles, although where relevant, institutional features helpful in understanding structure and operations of markets to be dealt with in detail. S/U or letter grading.

234B. Financial Management of Multinational Corporations. (4) Lecture, three hours. Requisites: courses 230 (or 430), 408. Financial management of multinational firms from perspective of financial vice president or other financial officer within company. Topics include measuring foreign exchange risk, managing that risk with both contractual and operating strategies, foreign investment decisions, capital budgeting and cost of capital in international perspective, political risk, working capital management, and performance evaluation and control. S/U or letter grading.

235. Venture Capital and Private Equity. (4) Lecture, three hours. Requisites: courses 408, 430. Use of cases to study entrepreneurial finance and venture capital. Analysis of issues faced by entrepreneurs who are setting up new firms, as well as decisions of private equity partnership managers and investors. How transactions are structured and why investors and entrepreneurs choose certain contractual arrangements. Development of understanding for institutional context of private equity finance. Time also devoted to leveraged buyouts. S/U or letter grading.

237A. Fundamentals of Corporate Finance and Accounting. (4) Lecture, three hours. Limited to Master of Financial Engineering Program students. Examination of financial statements and tax liabilities of firms. Introduction to key issues facing corporate financial decision makers, including making capital budgeting and investment decisions, designing capital structure of firms, minimizing agency costs and costs of financial distress, role of financial innovation, capital markets, and valuation of real options embedded in investment projects such as option to expand, contract, and shut down operations temporarily. S/U or letter grading.

237B. Fundamentals of Investments. (4) Lecture, three hours. Limited to Master of Financial Engineering Program students. Essentials of asset pricing and portfolio choice, standard discounted cash flow approaches, and no-arbitrage framework for valuing financial securities. Basic paradigms of asset pricing, such as capital asset pricing model (CAPM), arbitrage pricing theory (APT), and Fama-French Three-Factor model. Development and illustration of dynamic portfolio selection and optimization approaches. Brief introduction to number of important asset classes such as equities, corporate bonds, real estate, and venture capital. S/U or letter grading.

237C. Introduction to Stochastic Calculus and Derivatives. (4) Lecture, three hours. Limited to Master of Financial Engineering Program students. Economic, statistical, and mathematical foundations of derivatives markets. Basic discrete- and continuous-time paradigms used in derivatives finance, including introduction to stochastic processes, stochastic differential

equations, Ito's lemma, and key elements of stochastic calculus. Economic foundations of Black/Scholes no-arbitrage paradigm, including introduction to Girsanov's theorem and changes of measure, representation of linear functionals, equivalent martingale measures, risk-neutral valuation, fundamental partial differential equation representations of derivatives prices, market prices of risk, and Feynman/Kac representations of solutions to derivatives prices. Role of market completeness and its implications for hedging and replication of derivatives. S/U or letter grading.

237D. Derivative Markets. (4) Lecture, three hours. Limited to Master of Financial Engineering Program students. Introduction to derivative markets. Derivatives are both exchange traded and over-the-counter securities. Derivative markets are world's largest and most liquid. Organization and role of put and call option markets, futures and forward markets, and their interrelations, with emphasis on arbitrage relations, valuation, and hedging with derivatives. Implementation of derivatives trading strategies, perspective of corporate securities as derivatives, functions of derivatives in securities markets, and recent innovations in derivative markets. S/U or letter grading.

237E. Empirical Methods in Finance. (4) Lecture, three hours. Limited to Master of Financial Engineering Program students. Econometric and statistical techniques commonly used in quantitative finance. Use of estimation application software in exercises to estimate volatility, correlations, stability, regressions, and statistical inference using financial time series. S/U or letter grading.

237F. Fixed-Income Markets. (4) Lecture, three hours. Limited to Master of Financial Engineering Program students. Quantitative approach to fixed-income securities and bond portfolio management, with focus on fixed-income security markets. Pricing of bonds and fixed-income derivatives, measurement and hedging of interest rate risk, dynamic models of interest rates, and management of fixed-income portfolio risk. S/U or letter grading.

237G. Computational Methods in Finance. (4) Lecture, three hours. Limited to Master of Financial Engineering Program students. Quantitative and computational tools used in finance, including numerical techniques such as implementation of binomial and trinomial option pricing, lattice algorithms for computing derivative prices and hedge ratios, simulation-based algorithms for pricing American options, and numerical solution of partial differential equations that appear in financial engineering. S/U or letter grading.

237H. Quantitative Asset Management. (4) Lecture, three hours. Limited to Master of Financial Engineering Program students. Application of state-of-art quantitative techniques to asset management problems. Asset pricing models in depth, portfolio optimization and construction, and dynamic strategies such as pairs trading, long-term and short-term momentum trades, and strategies that address behavioral finance anomalies. Major forms of asset management structures such as mutual funds, hedge funds, exchange traded funds (ETFs), special investment vehicles, and some primary types of trading strategies used by these organizations. S/U or letter grading.

237I. Financial Risk Measurement and Management. (4) Lecture, three hours. Limited to Master of Financial Engineering Program students. Examination of financial risk measurement and management, including market risk, credit risk, liquidity risk, settlement risk, model risk, volatility risk, and kurtosis risk. S/U or letter grading.

237J. Asset-Backed Security Markets. (4) Lecture, three hours. Limited to Master of Financial Engineering Program students. Exploration of uses and valuation of asset-backed securities, including mortgage-related securities and securities backed by credit cards, leases, and bank debt. Particular attention to mortgage-related securities because of sheer size and importance of this market, as well as fact that pooling and tranching necessary for securitization can be most easily seen in mortgage collateral. Introduction to underlying mortgage instruments, as well as other securities derived from these mortgages. Cov-

erage of term structure and prepayment models necessary to value and hedge these securities. Investigation of credit risk in mortgages and other instruments. S/U or letter grading.

237K. Introduction to Credit Markets. (4) Lecture, three hours. Limited to Master of Financial Engineering Program students. Introduction to building and implementation of credit models for use by financial institutions and quantitative investors. Basics of corporate debt securities and in-depth introduction to credit derivatives markets. Discussion of structured credit products such as both cash and synthetic collateralized debt obligations (CDOs). S/U or letter grading.

237M. Special Topics in Financial Engineering. (2 to 4) Lecture, three hours. Limited to Master of Financial Engineering Program students. In-depth examination of problems or issues in one area of current concern in financial engineering. May be repeated for credit. S/U or letter grading.

237N. Applied Finance Project. (8) Fieldwork, eight hours. Limited to Master of Financial Engineering Program students. Applied quantitative finance project that explores one quantitative finance problem that might be met in practice and involves development or use of some tools developed in M.F.E. Program. S/U or letter grading.

238. Special Topics in Finance. (4) Lecture, three hours. Requisites: courses 230 (or 430), 408. Selected topics in finance theory, empirical studies, and financial policy. May be repeated for credit with instructor change. S/U or letter grading.

239A. Theory of Exchanges under Uncertainty. (4) Lecture, three hours. Primarily designed for Ph.D. students, but well-prepared master's students may find course useful in their career preparation. Foundations of theory of exchange developed as introduction to theoretical literature on pricing of capital assets. S/U or letter grading.

239B. Theory of Investment under Uncertainty. (4) Lecture, three hours. Primarily designed for Ph.D. students, but well-prepared master's students may find course useful in their career preparation. Foundations of theory of firm capitalization and investment decisions, with special attention to questions of exchange and allocative efficiency. S/U or letter grading.

239C. Empirical Research in Finance. (4) Lecture, three hours. Preparation: training in econometrics. Primarily designed for Ph.D. students, but well-prepared master's students may find course useful in their career preparation. In-depth study of empirical research in field of finance, statistical methodologies applied to test market efficiency, and asset pricing theory. S/U or letter grading.

239D. Ph.D. Seminar: Corporate Finance. (4) Seminar, three hours. Designed for Ph.D. students. Advanced topics in corporate finance theory and empirical research. May be repeated for credit with instructor change. S/U or letter grading.

239X-239Y-239Z. Finance Workshops. (1-1-2) Discussion, 90 minutes. Designed for Ph.D. students. Intended to develop ability to critically evaluate finance research. Papers presented in colloquium format by leading scholars in finance. Active participation and intellectual interchange encouraged through discussion of papers in sessions prior to workshop, as well as during colloquium. May be repeated for credit. S/U grading.

240A. Managing Service Operations. (4) Discussion, three hours. Requisite: course 410. Design, management, improvement, and measurement of service and loyalty initiatives in variety of industries and organizations, with emphasis on understanding service and loyalty opportunities, their operating problems, and successful resolution. Extensive employment of cases. S/U or letter grading.

240D. Operations Strategy: Theory and Practicum. (4) Discussion, three hours. Requisite: course 410. Definition and scope of operations strategy. Integrated framework for assuring crucial fit between operational strategies and corporation's strategic positioning. Cases used to illuminate strategic issues in both manufacturing and nonmanufacturing situations. Object of practicum, or applied strategy aspect of

course, to provide students with skill in identifying operationally appropriate business processes and metrics required to implement enterprise's strategic position. S/U or letter grading.

240E. Managing Entrepreneurial Operations. (4) Lecture, three hours. Requisite: course 410. Designed for second-year graduate students. Exploration of operating issues involved in managing entrepreneurial enterprises. Integrative course, building on methodologies, principles, and concepts provided in requisite functional and strategic core courses. Use of extensive readings and case studies to develop skills and philosophical basis for applying managerial concepts to entrepreneurial operations. S/U or letter grading.

240F. Supply Chain Management. (4) Lecture, three hours. Requisite: course 410. Business environment today is characterized by globalized operations, intense competition, rapid technological change, and short product life cycles. Consequently, firms can no longer afford to operate in isolation. In many industries competition has moved from firm level to supply chain level. Provides understanding of strategic, tactical, and operational issues in supply chain management, with generous attention to emerging digital economy. S/U or letter grading.

240G. Global Operations Strategy. (4) Lecture, three hours. Requisite: course 410. Study of challenges of operating globally in range of industries, including software, consulting, automotive, and textile. Several opportunities for hands-on quantitative methods, with strategic perspective throughout. S/U or letter grading.

241A. Technology Management. (4) Lecture, three hours. Requisites: courses 410, 411A, 411B. Management of high-technology firm, including acquisition, creation, and utilization of technology and knowledge assets. Research and product development, product and process technologies, technology regimes, high-technology markets, competition, and technology strategies. Case examples from sectors such as computing, telecommunications, e-business, medical devices, nanotechnology, advanced transportation systems, and electronics. S/U or letter grading.

241B. Project Management. (4) Discussion, three hours. Requisite: course 407. Management of development projects. Decision-making environment, economic analysis, network analysis, scheduling, and control of development projects. Sequential and aggregate development decisions. S/U or letter grading.

242A. Models for Operations Planning, Scheduling, and Control. (4) Discussion, three hours. Designed for Ph.D. students with some knowledge of mathematical programming and stochastic processes. Foundations of operations planning, scheduling, and control, with emphasis on formal models and their applications. Aggregate planning, work force scheduling, inventory management, and detailed operations scheduling and control. S/U or letter grading.

242B. Models for Operations Systems Design. (4) Discussion, three hours. Requisite: course 210C. Designed for Ph.D. students. Survey of research literature on models for design of manufacturing and service systems, including long-range forecasting, operational economies, capacity, location, facilities, processes/technology, work, and work structures. S/U or letter grading.

243B. Inventory Theory. (4) Discussion, three hours. Requisite: course 210B. General discussion of inventory models, with emphasis on characterizing form of optimal policies and efficient computational methods. Deterministic, stochastic, discrete-time, and continuous-time models. S/U or letter grading.

243C. Scheduling Models for Intermittent Systems. (4) Discussion, three hours. Requisite: course 242A. Scheduling models and results for single machine, flow shop, job shop, and resource-constrained project networks. Approaches include classical models, recent heuristic approaches, current research in coordinated interaction of computer models, and man/machine interaction. S/U or letter grading.

243X-243Y-243Z. Seminars: Decisions, Operations, and Technology Management Systems. (1-1-2) Seminar, 90 minutes to three hours. Required of all Ph.D. students in decisions, operations, and technology management. Student, faculty, and guest speaker presentations of ongoing research. May be repeated for credit. S/U or letter grading.

244X-244Y-244Z. Research in Decisions, Operations, and Technology Management. (1-1-2) Lecture, three hours. Designed for first- and second-year Ph.D. students in decisions, operations, and technology management. Survey of research literature in operations and technology management. Seminar reports dealing with special topics. May be repeated for credit with topic change. S/U or letter grading.

245. Special Topics in Decisions, Operations, and Technology Management. (4) Lecture, three hours. Designed for M.B.A. and Ph.D. students. Studies of advanced subjects of current interest in decisions, operations, and technology management. Emphasis on recent developments and application of specialized knowledge. Topics vary each term and have included strategy for information intensive industries, empirical research in operations management, analytical methods of operation research, introduction to management in information economy, and models for medical management. May be repeated for credit with topic change. S/U or letter grading.

246A. Business and Environment. (4) Lecture, three hours. Overview of many ways in which environmental issues interact with main functional areas of business: finance, marketing, strategy, operations, accounting. Basic introduction to background of environmental issues, with focus primarily on business aspects. Specific topics vary from year to year, but course details what every manager should know about environmental issues in business. S/U or letter grading.

246C. Management in Public and Private Nonprofit Sectors. (4) Designed for graduate students. Examination of roles and management systems of the three sectors of U.S. society; unique aspects and managerial issues of public and private nonprofit organizations and of their political, social, and technical environments. Financial, marketing, and operational considerations and evaluation, control, and ethical issues of service delivery systems.

247A. Environment of the Art World. (4) Consideration and analysis of political, social, economic, and environmental forces in American society as they affect existence and development of arts institutions in the U.S. Exploration of present policies and trends and potential future developments.

247B. Role of Management in Artistic Decision Making. (4) Descriptive study of criteria for decision making in artistic institutions, including role of the institution in society, economic environment of the arts, and artistic value systems of arts organizations.

248A. Strategic Management in the Entertainment Industry. (4) Discussion, three hours. Requisites: courses 403, 405, 406, 408, 420. Examination of financial and strategic aspects of transactions and company management in the entertainment industry. Cases and topics include organizational behavior and decision making in creative companies; trends in industry structure and competitive economics; accounting issues; institutional and private investment in motion pictures; theatrical distribution, international and ancillary markets (pay TV, videocassettes, syndication).

249A. Special Topics in Public and Private Nonprofit Management. (4) Studies of advanced subjects of current interest in public/not-for-profit management. Emphasis on recent developments and application of specialized knowledge to public/not-for-profit problems. Topics vary each term. May be repeated for credit with topic change.

249B. Special Topics in Arts Management. (4) Examination of current issues in management of artistic organizations. Relevant combinations of lectures, discussions, case studies, and team research projects.

M250A. Labor Relations: Process and Law. (4) (Same as Public Policy M232.) Lecture, three hours. Designed for graduate students. Consideration, at advanced level, of collective bargaining process, labor/management agreement, administration of the contract, law of labor/management relations, union structure and goals, and influence of external labor markets on labor relations. S/U or letter grading.

250B. Human Resource Management: Process and Law. (4) Requisite: course M250A. Systematic exposure to theoretical and empirical literature concerning administrative and legal aspects of human resource management. Topics include processes of managing human resources and impact of governmental policies on employer/employee relations.

250C. Behavioral Foundations of Human Resource Management. (4) Requisite: course 250B. Topics include development and training; human resource accounting; behavioral foundations of participating management; motivation, productivity, and satisfaction; designing reward systems; and evaluation of organization effectiveness. Emphasis on understanding, predicting, and influencing human behavior in organizations.

251. Managing Human Resources. (4) Management of people in organizations, designed for managers as well as personnel specialists. Organized at three related but distinct levels of analysis: (1) day-to-day utilization of people as organizational resources to achieve optimal productivity, satisfaction, retention, and development; (2) personnel management function or system that performs specialized human resource functions; and (3) issues facing top management which involve management of human resources, including strategic planning for human resources, union/management relations, and design of corporate culture.

252. Systems of Employee/Management Participation. (4) Designed to provide understanding of systems of employee/management participation around the world (apart from traditional collective bargaining systems). Specific concepts such as worker participation in decision making, industrial democracy, joint consultation, workers' councils, profit sharing.

253. International Political Economy. (4) Lecture, three hours. Examination of political, legal, and social institutions to demonstrate varieties of modern capitalism and business/government relations around world. Analysis of major domestic policy options that nations are pursuing in response to economic globalization and introduction to international coalitions being formed as result of globalization, including NAFTA, and to nongovernmental organizations created to deal with special problems such as global environmental crisis. Letter grading.

254. Pay and Rewards in Organizations. (4) Lecture, three hours. Systematic treatment of pay (compensation) and rewards in organizations, with emphasis on design, implementation, and outcomes of organizational pay and reward systems and practices that are shaped by strategic, labor market, and motivational considerations. Specific topics include variable compensation (e.g., bonus, profit-sharing, stock ownership, and stock option plans) and noncompensation rewards; compensation and rewards for performance and in entrepreneurial and public organizations; fringe benefits; executive compensation; and international and comparative compensation/reward practices. S/U or letter grading.

M255. Comparative Industrial Relations. (4) (Same as Public Policy CM231.) Lecture, three hours; outside study, nine hours. Requisite: course 409 or elementary knowledge of labor economics. At national and international levels, historical and contemporary analytical comparison of political, social, and economic contexts influencing human resource systems of selected developed countries. In addition to discussing possible frameworks for analyzing human resource systems, examination of institutions and ideologies of labor, management, and government, and interaction of their power relationships; substance and manner of determination of "web of rules" governing rights and obligations of the parties; and resolution of conflicts. S/U or letter grading.

257. Human Resource Management in Creative and Nonprofit Sectors. (4) Designed for graduate students. Analysis of human resource management theory and practices in industries where primary product is creative or intellectual (e.g., arts, entertainment, education, high technology, and journalism). Consideration of incorporation of work design, employee influences, systems, and business strategies in human resource management. Interpersonal and group process for managing human behavior. S/U or letter grading.

258. Research Seminar: Human Resources and Organizational Behavior. (1 to 4) Seminar, two hours. Designed for Ph.D. students. Examination in depth of problems or issues of current concern in human resources and organizational behavior. Emphasis on recent contributions to theory, research, and methodology. Of special interest to advanced Ph.D. candidates, academic staff, or distinguished visiting faculty. May be repeated for credit. S/U or letter grading.

259A. Individuals and Groups in Organizations. (4) Lecture, three hours. Designed for graduate students. Doctoral-level survey of classic and emerging theories and research in field of organizational behavior, with focus on micro-level topics related to individual and interpersonal processes within organizations. Exploration of how individual behaviors, cognitions, and perceptions are affected by organizational content, structure, and culture. S/U or letter grading.

259B. Advanced Studies in Human Resource Management. (4) Lecture, three hours. Designed for graduate students. Doctoral-level survey of research literature assessing how organizations utilize human resources to enhance individual, group, and organizational effectiveness. Current theory and research in psychology, anthropology, organization behavior, and economics, including topics such as careers, participation, negotiations, and technology/work systems. S/U or letter grading.

M259C. Labor Markets and Public Policy. (4) (Same as Public Policy CM230.) Lecture, three hours; outside study, nine hours. Designed for graduate students. Survey of major topics in economic analysis of labor markets and public policies toward labor market. Topics include labor force trends and measurement, compensation determination, productivity, internal labor markets, human capital, union wage effects, unemployment, and minority and female labor-market experience. S/U or letter grading.

260A. Market Assessment. (4) Lecture, three hours. Requisites: courses 411A, 411B. Decision-oriented course concerned with solution of product, price, promotion, and distribution channel problems. Extensive use of case studies. Letter grading.

260B. Marketing Strategy and Planning. (4) Lecture, three hours. Requisites: courses 411A, 411B. Development of framework for strategic marketing planning based on customer behavior, market segmentation, product positioning, product life cycle, market responsiveness, and competitive reaction. Within this framework, development of key elements in annual marketing process. Letter grading.

261A. Sales and Channel Management. (4) Lecture, three hours. Requisites: courses 411A, 411B. Study of problems in management of sales and distribution channels. Issues of personal selling, account management, determining sales force size, organization, and compensation plans. Coverage of channel selection, conflict, power, and control. Extensive use of case studies. Letter grading.

261B. Global Marketing Management. (4) Lecture, three hours. Requisites: courses 411A, 411B. Analysis of opportunities, distinctive characteristics, and emerging trends in foreign markets, including exploration of alternative methods and strategies for entering foreign markets; organizational planning and control; impact of social, cultural, economic, and political differences; and problems of adapting American marketing concepts and methods. Letter grading.

262. Price Policies. (4) Lecture, three hours. Requisites: courses 405, 411A, 411B. Consideration of environment of pricing decision—costs, customer, channels, competition, and regulation. Analysis of when

and how to apply specific pricing strategies, including two-part tariffs, quantity discounts, product differentiation, bundling, and auctions. Letter grading.

263A. Consumer Behavior. (4) Lecture, three hours. Requisites: courses 411A, 411B. Study of nature and determinants of consumer behavior. Emphasis on influence of sociopsychological factors such as personality, small groups, demographic variables, social class, and culture on formation of consumers' attitudes, consumption, and purchasing behavior. S/U or letter grading.

264A. Market Research. (4) Lecture, three hours. Requisites: courses 411A, 411B. Designed for prospective users of research results rather than for specialists in research. Marketing research is aid to management decision making. Development of problem-analysis skills, providing knowledge of concepts and methods of marketing research, with increased sensitivity to limitations of marketing data. Letter grading.

264B. Marketing Models and Market Response Analysis. (4) Lecture, three hours. Requisites: courses 411A, 411B. Advanced topics in marketing research, with emphasis on quantitative tools to aid marketing decision making. Topics include demand and market share forecasting, conjoint analysis, market segmentation and cluster analysis, brand positioning and competitive market structures, and assessing market response to price, advertising, promotion, distribution, and sales force. Letter grading.

265. Brand Management. (4) (Formerly numbered 265A.) Lecture, three hours. Requisites: courses 411A, 411B. Introduction to considerations in development, implementation, and management of brands. Discussion of challenges to creating and maintaining strong brands. Topics include building brand knowledge and identities, marketing mix and brands, brand architectures, and brand equity. Letter grading.

266A. New Product Development. (4) Lecture, three hours. Requisites: courses 411A, 411B. Examination of new product development (NPD) process with objective of learning key tools and methods and applying them to case studies, exercises, and course project. Products viewed through three lenses: quantifiable rational attributes, appeal due to emotional characteristics, and cost/technology/competitive tradeoffs. NPD process also investigated through five key phases: ideation, concept generation and selection, detailed design, prototyping and testing, and ramp-up and product launch. Coverage of mass customization, parallel prototyping, cost reduction, and creativity. Letter grading.

266B. Advertising and Marketing Communications. (4) Lecture, three hours. Requisites: courses 411A, 411B. Detailed review of use of communication tools in marketing. Critical review of advertising and promotional policies from developmental and executional perspectives. Discussion of other forms of marketing communications, with goal of helping students develop integrated communication strategies. Letter grading.

267. One-to-One Marketing. (4) Lecture, three hours. Requisites: courses 402, 411A, 411B. Use of notion of "customer life cycle" as organizing principle and application to one-to-one marketing context. Frameworks and analytical tools for interacting with customers and learning about their preferences as they evolve through four stages of customer life cycle: (1) customer acquisition, (2) initial post-promotion purchasing, (3) mid-maturity purchase and transaction behavior, and (4) customer attrition or switchover to other product lines. S/U or letter grading.

268. Selected Topics in Marketing. (4) Lecture, three hours. Requisites: courses 411A, 411B. Study of selected areas of marketing knowledge and thought. Specific subjects vary each term depending on particular interests of instructor and students. Individual projects and reports. May be repeated for credit. S/U or letter grading.

269A. Theory in Marketing. (4) Serves as mechanism to introduce students to development of marketing thought. Issues pertaining to general topic of theory development and testing. Prepares students for conducting theoretically grounded research in marketing.

269B. Research in Marketing Management. (4) Discussion, three hours. Designed for Ph.D. students. Study of research issues associated with marketing management decisions. Recent research in areas of strategic marketing, market segmentation, new product development and introduction, pricing strategies, channel policy, promotion decisions, and sales force management examined critically. Review of both quantitative and behavioral approaches to studying these issues.

269C. Quantitative Research in Marketing. (4) Discussion, three hours. Designed for Ph.D. students in management and related fields. Students are assumed to have good background in marketing principles and to be familiar with probability, statistics, mathematical programming, and econometrics. Review of a range of quantitative models as applied in marketing research. S/U or letter grading.

269D. Behavioral Research in Marketing. (4) Designed for Ph.D. students who are conducting research in consumer behavior or related areas. Empirical research in consumer behavior surveyed and critically evaluated from theoretical as well as practical perspectives.

269E. Special Research Topics in Marketing. (4) Designed for Ph.D. students. Advanced selected topics in marketing, with emphasis on thorough examination of one or two topics in current research and theory. May be repeated for credit.

269X-269Y-269Z. Workshops: Marketing. (1-1-2) Discussion, three hours. Designed for Ph.D. students. Required of all students during first two years of their Ph.D. work. Series consists of number of leading scholars in marketing and related disciplines who make presentations to marketing faculty and Ph.D. students. Active participation and intellectual interchange that helps students gain richer perspective on field of marketing. In Progress (269X, 269Y) and S/U or letter (269Z) grading.

270A. Information Systems Applications. (4) Lecture, three hours. Requisite: course 404. Fundamental concepts and uses of information systems in organizations. Systems for intraorganizational and interorganizational transaction, coordination, and control. Information technology for reengineering of business processes. Analysis and evaluation of systems and their impacts. S/U or letter grading.

270B. Decision Support Systems. (4) Lecture, three hours. Requisite: course 404. Systems for support of individual and group decision making and collaborative work. Expert and other knowledge-based systems and their applications. Fundamentals of human/computer interaction. S/U or letter grading.

270C. Application Frontiers in Information Systems. (4) Lecture, three hours. Requisite: course 404. Exploration of new state-of-the-art applications in information systems, such as in electronic commerce. Assessment of industrial opportunities and impacts. Topics vary from term to term. May be repeated for credit. S/U or letter grading.

271A. Information Systems Technology. (4) Lecture, three hours. Requisite: course 404. Computing and communication platform specification, configuration, sizing, and selection for business applications—from hand-helds to workstations to mainframes. Open and proprietary architectures. Client/server. Comparative performance and cost analyses. Industry trends. S/U or letter grading.

271B. Networks for Information Systems. (4) Lecture, three hours. Requisite: course 404. Telecommunications technology. Design, implementation, and management of local and wide area networks for the firm. Security; protocols and standards; commercial value-added and public-access networks; Internet. Industry trends. S/U or letter grading.

271C. Emergent Technologies in Information Systems. (4) Discussion, three hours. Requisite: course 404. Special topics in new and emergent technologies such as multimedia, digital imaging, object-oriented software, heterogeneous databases, and parallel pro-

cessing. Assessment of industrial opportunities and impacts. Topics vary from term to term. May be repeated for credit. S/U or letter grading.

272A. Information Systems Development. (4) Discussion, three hours. Methods and tools for information systems design, development, implementation, and maintenance. User requirements analysis. Design and specification of application software and databases. Classic and alternative approaches, such as rapid prototyping. System integration. Automated support. S/U or letter grading.

273A. Information Systems Management. (4) Discussion, three hours. Requisite: course 404. Managing information systems function within the enterprise. Role of chief information officer. Centralized and decentralized organizational designs. Outsourcing and other vendor relationships. Costing and pricing of services. Strategic planning. Management of information systems professionals. S/U or letter grading.

274A. Special Topics in Information Systems. (4) Discussion, three hours. Designed primarily for Ph.D. students. Examination in depth of problems or issues of current concern in information systems theory and practice. Topics vary from term to term. May be repeated for credit. S/U or letter grading.

274B. Workshop: Information Systems Research. (4) Discussion, three hours. Designed for Ph.D. students. New developments in information systems theory, practice, and empirical research. In-depth consideration of research designs and methods. Presentation of student work-in-progress. May be repeated for credit. S/U or letter grading.

274X-274Y-274Z. Current Research in Information Systems. (1-1-2) Discussion, two hours. Designed for Ph.D. students. Year-long sequence associated with Information Systems Colloquium Series. Regularly scheduled presentations of current research and state-of-the-art developments in information systems field. Study and discussion of research presented. May be repeated for credit. S/U grading.

M277A-277B. Real Estate Finance Law. (1 to 6 each) (Formerly numbered M278C.) (Same as Law M209.) Lecture, three hours. Course M277A is enforced requisite to 277B. Concentrated study of law governing financing of land transactions from both national and California perspectives. Topics include California deed of trust, installment land contracts and other mortgaging substitutes, mortgaging rents, receivers, lender liability for hazardous waste and environmental problems, prepayment, foreclosure, priorities, California antideficiency legislation, impact of borrower bankruptcy on mortgage lenders, construction lending, future advances lending, condominium development, and secondary mortgage market. In Progress (M277A) and S/U or letter (277B) grading.

278A. Urban Real Estate Financing and Investing. (4) Lecture, three hours. Requisites: courses 408, 430. Investor-oriented course in which real estate and business trends are evaluated to determine alternative real estate investment opportunities. Use of current financial, economic, and investment theories and techniques to real estate investment opportunities in case studies and short case problems to illustrate development of investment strategies. S/U or letter grading.

278B. Real Estate Securitization: Debt. (4) Lecture, three hours. Requisites: courses 230 (or 430), 408. Analysis of money, capital, and mortgage markets to determine potential availability and costs of mortgage money from alternative sources. Evaluation of various sources of funds to determine factors influencing decisions to make mortgage loans. Examination of all types of lending instruments, particularly mortgage instruments, and mortgage-based securities for their impacts on real estate investment decisions. S/U or letter grading.

279A. Cases in Real Estate Investments. (4) Lecture, three hours. Requisites: courses 408, 430. Development of understanding of principal issues involved with real estate investment and finance. Topics include real estate financial analysis and valuation in variety of contexts (single and multifamily residential, commercial/industrial, shopping center, and hotel properties),

real estate taxation, real estate law, development process, securitization, REITs, and leasing and workout of troubled properties. S/U or letter grading.

279B. Entrepreneurial Real Estate Development. (4) Lecture, three hours. Requisites: courses 278A (or 279A), 408, 430. Introduction to various aspects of real estate development from perspectives of entrepreneur and investor. Coverage of all types of developments, including single family, multifamily, hotel, office, retail, and industrial. Industry guest speakers to help reinforce principles taught. Real estate development simulation and group presentations to panel of investors included. S/U or letter grading.

280A. Studies, Research Philosophies, and Methodology in Human Systems. (4) Discussion, three hours. Designed for Ph.D. students. Survey of seminal studies of human systems, including individual, group, and intergroup behavior, and organization behavior. Consideration of objectivist and subjectivist philosophies of science and their implications for related methodologies, including experimentation, field studies, case approaches, and a range of analytic and descriptive procedures in data collection. Emphasis on existing literature, philosophy of science, and concepts. May be repeated for credit. S/U or letter grading.

280B. Personal and Professional Development. (4) Discussion, three hours. Designed for Ph.D. students. Provides setting where students may explore their own professional values and approaches in process of testing and learning values and standards in applied behavioral sciences and human systems development. S/U or letter grading.

280C. Research Design in Human Systems Studies. (4) Discussion, three hours. Designed for Ph.D. students. Process of designing studies of human systems, including choice of research topics. Actively involves students in preparation of research proposals for research papers and Ph.D. dissertations. May be repeated for credit. S/U or letter grading.

281A. Sociotechnical Systems. (4) Designed for graduate students. Introduction to systems concepts and view of work organizations as interacting social and technical systems open to forces from the surrounding environment. Focus on developing sociotechnical systems analytic approach and understanding advantages of this approach for designing and managing organizations.

281B. People in Organizations. (4) Designed for graduate students. Introduction to different philosophical perspectives for understanding human behavior. Theories and concepts important for understanding human behavior in organizations, as well as managerial implications of individual, group, and social behavior. Special attention to knowledge about satisfaction, motivation, and productivity in organizations.

282. Task Group Processes. (4) Lecture, three hours. Requisite: course 281A or 281B. Structures, processes, and interrelations of work groups in sociotechnical systems. Emphasis on understanding how group activities interrelate with physical/technical environment. Imparts practical knowledge of task group functioning through class exercises and field observations. Consideration of team concepts and project group design. S/U or letter grading.

284A. Organization Design. (4) Lecture, three hours. Requisite: course 281A or 281B. Survey of organizational design theories and methods, including bureaucratic, participative, and cognitive models. Development of specific methods ranging from microdesign of jobs to macrodesign of total organizational systems. Special emphasis on sociotechnical and differentiation/integration models. S/U or letter grading.

284B. Organization Development. (4) Discussion, three hours. Designed for graduate students. Analysis of effects of organizational and managerial practices on individual self-fulfillment and systems effectiveness. Theories of organization change and action/research methods in organization development. Theory merged with practice through seminar discussions of field observations. S/U or letter grading.

284C. Managing Entrepreneurial Organizations. (4) Lecture, three hours. Issues involved in developing and managing entrepreneurial organizations. Topics include organizational growth, managerial tools, strategic planning, organizational design, management development, control systems, leadership, and cultural management. Examination of transitions that individuals must make as organizations grow. S/U or letter grading.

285A. Leadership, Motivation, and Power. (4) Discussion, three hours. Designed for graduate students. Theoretical and practical approaches to influencing and motivating people. Relative effectiveness of various leadership styles, different motivation theories, and power tactics from managerial point of view. Use of experience-based learning methods to aid diagnosis and understanding of one's own influence styles. S/U or letter grading.

285B. Managerial Interpersonal Communication. (4) Discussion, three hours. Designed for graduate students. Interpersonal and personality factors affecting managerial communications. Styles and modes of communication in one-to-one, group, and large-systems settings. Opportunities offered to deepen understanding of one's own communication styles and skills, considering verbal, nonverbal perceptual, and cross-cultural aspects. S/U or letter grading.

286. Negotiations Behavior. (4) Discussion, three hours. Presentation of theoretical principles and concepts from psychology, sociology, and economics through lectures and readings, with focus primarily on improving practical negotiating skills through experiential learning (i.e., negotiations simulations). Participants learn not only to enhance their individual abilities in dyadic and group situations, but also to analyze contexts for most effective application of these skills. S/U or letter grading.

287. Groups and Their Facilitation. (4) Discussion, three hours. Development of cognitive and experiential understanding of dynamics of small group training and its facilitation, including "sensitivity"/basic groups, group counseling, self-help groups, small groups, and committees in managerial decision making. Analysis of relevant theory, research findings, and case studies. S/U or letter grading.

288A. Selected Topics in Behavioral Science. (4) Discussion, three hours. Designed for graduate students. Theories of human behavior fundamental to study of individual, group, organizational, and cultural behavior. Exploration in depth of selected theoretic positions, extending and consolidating behavioral science knowledge and application. May be repeated for credit. S/U or letter grading.

288B. Current Issues in Sociotechnical Systems and Organization Design. (4) Discussion, three hours. Designed for graduate students. Current topics in analysis and design of organizations as sociotechnical systems engaged with various technologies and environments, emphasizing design approaches emanating primarily from Europe, the Orient, and the U.S. In-depth comparisons of selected job and organizational design cases. May be repeated for credit. S/U or letter grading.

288C. Selected Topics in Human Systems Studies and Organizational Behavior. (4) Discussion, three hours. Designed for graduate students. Psychological and social psychological aspects of human behavior and performance in organizations. Theoretical models, empirical findings, and applications of such topics as attitudes and values, cognitive and perceptual processes, behavioral conflict, and individual change processes. May be repeated for credit. S/U or letter grading.

288D. Current Issues in Human Systems Change and Development through Consulting. (4) Discussion, three hours. Current topics in philosophy, art, and technology of improving organizations and increasing managerial effectiveness through consulting interventions. In-depth treatment of consultant entry and exit, diagnosing, process consultation, consciousness raising, team building, and values. Relevant to development of effective M.B.A. field-study teams. S/U or letter grading.

288E. Proseminar: Behavioral and Organizational Sciences Colloquium. (4) Discussion, three hours. Designed for graduate students. Series of presentations by scholars and practitioners in behavioral and organizational sciences, with focus on integrative themes or major issues in the field, designed to provide dialogue among students and faculty on significant topics, controversies, and leading-edge ideas. May be offered in one or successive terms and may be repeated for credit. S/U or letter grading.

290. Organization Theory. (4) Lecture, three hours. Analysis of theory and practice of managerial function of planning and control. Implementation of objectives through policy formulation, decision making, and control. Individual projects and reports. S/U or letter grading.

M292A. Research and Development Policy. (4) (Same as Public Policy M280A.) Lecture, three hours. Examination of research and development as process and as element of goal-oriented organization. Factors affecting invention and innovation; transfer of technology; organizational and behavioral considerations; coupling of science, technology, and organizational goals; assessing of and forecasting technological futures. S/U or letter grading.

M292B. Growth, Science, and Technology. (4) (Same as Public Policy M280B.) Lecture, three hours. Economic growth and change. Role of advances in science and technology, and actions of maximizing innovators and factors impinging on their behavior. How technological breakthroughs (or discontinuities) can form new industries or transform nature of and population of firms in existing industries. S/U or letter grading.

292C. Comprehensive Planning in Public Sector. (4) Evolving modes of planning under complexity, with particular emphasis on public sector. Development of policy through standard setting, bargaining, and regulating governing relationships; reality and value judgments; social and technical dimensions of alternatives; and social and technological forecasting.

293A. Political Environment of American Business. (4) Lecture, three hours. Evaluation of certain criticisms made by business of the American political system. Designed to provide clearer understanding of principal features of American politics, especially as they influence business enterprise.

293C. Ethical Considerations in Business. (4) Lecture, three hours. Examination of a range of ethical considerations in business decisions involving the individual, corporation, society, and international business. Analysis of cases for classroom presentation and discussion.

295A. Entrepreneurship and Venture Initiation. (4) Exploration in entrepreneurship particularly concerned with formation and operation of new business ventures. Significant and crucial aspects of exploring new business opportunities and starting a business.

295B. Small Business Management. (4) Exploration of crucial aspects in managing small business enterprises. Emphasis on identification and analysis of characteristic operating problems of small firms and application of appropriate methods or techniques for their solution.

295C. Corporate Entrepreneurship. (4) Inquiry into nature of entrepreneurship and effective implementation of entrepreneurial strategies in large industrial enterprises. Emphasis primarily on managerial effects aimed at identification, development, and exploitation of technical and organizational innovations, management of new product or process developments, and effective new venture management in a corporate context.

295D. Business Plan Development. (4) Lecture, three hours. Fundamentals of developing effective written business plans. Basic principles of developing plans for sales, marketing, product or service, operations, financials, and management and staffing functions of new startup businesses. S/U or letter grading.

296A. International Business Management. (4) Discussion, three hours. Identification, analysis, and resolution of managerial issues of policy and action within context of a multinational corporation, with emphasis on problems of adaptation to different socio-

logical, cultural, legal, political, and economic environmental characteristics on planning, structuring of organizational relationships, and coordination and control in multinational firms. S/U or letter grading.

296B. International Comparative Management Research. (4) Designed for Ph.D. students. In-depth study of theory and research pertaining to international business and comparative management. Emphasis on recent research developments and methodological issues. Imparts knowledge on design and conduct of international comparative management research.

297A. Comparative and International Management. (4) Comparative study of practice of management in selected foreign countries, as affected by their social environments and development of management theory. S/U or letter grading.

297B. International Business Strategy. (4) Discussion, three hours. Analysis of key strategic problems encountered by multinational corporations entering foreign markets. Application of concepts and theories acquired in other courses to series of complex cases on international business or by use of a complex simulation of competition in global markets. Letter grading.

297C. International Business Law. (4) Requisites: courses 205A, 296A. Legal environments in which international business operates; overseas business relationships and organizations; antitrust, taxation, transfer of capital, and technology regulations; patent, trademark, and copyright safeguards; arbitration of international business disputes; expropriation of foreign investments; international business and government relations.

297D. International Business Negotiations. (4) Requisite: course 296A. Exploration of international business negotiations of multinational enterprises with governmental agencies and foreign-based firms on a wide range of issues, such as establishment/dissolution of joint ventures, extent of foreign ownership/management control, terms/conditions for technology transfer, investment incentives.

297E. Business and Economics in Emerging Markets. (4) Lecture, three hours. Requisite: course 205A or 405. Analysis of changing economic, political, demographic, and sociocultural conditions in developing countries as they affect the business environment. Process of economic growth, market-oriented reforms, and creation of domestic capital markets. Inflation and stabilization programs, identification of business risks and opportunities, as well as tools needed to manage firms under these conditions. S/U or letter grading.

298A. Special Topics in Management Theory. (4) Designed for Ph.D. students. Examination in depth of problems or issues of current concern in management theory. Emphasis on recent contributions to theory, research, and methodology. Of special interest to advanced Ph.D. candidates, academic staff, or distinguished visiting faculty. May be repeated for credit.

298B. Special Topics in International and Comparative Management. (4) Designed for Ph.D. students. Examination in depth of problems or issues of current concern in international and comparative management. Emphasis on recent contributions to theory, research, and methodology. Of special interest to advanced Ph.D. candidates, academic staff, or distinguished visiting faculty. May be repeated for credit.

298C. Special Topics in Sociotechnical Systems. (4) Designed for Ph.D. students. Examination in depth of problems or issues of current concern in sociotechnical systems. Emphasis on recent contributions to theory, research, and methodology. Of special interest to advanced Ph.D. candidates, academic staff, or distinguished visiting faculty. May be repeated for credit.

298D. Special Topics in Management. (1 to 4) Lecture, three hours. Designed for graduate students. In-depth examination of problems or issues of current concern in management, with numerous topics offered each year. May be repeated for credit. S/U or letter grading.

M298E. Seminar: Neuroeconomics. (4) (Same as Psychology M267.) Seminar, three hours. Limited to graduate students. Analysis and discussion of research on cognitive and neural bases of decision making. S/U or letter grading.

298X-298Y-298Z. Management Strategy and Policy Workshops. (1-1-2) Discussion, three hours. Designed for Ph.D. students. Intended to develop ability to critically evaluate research in fields relevant to study of management strategy and policy. Papers presented in colloquium format by leading scholars in management strategy and policy. Active participation and intellectual interchange encouraged through discussion of papers in sessions prior to workshop, as well as during colloquium. May be repeated for credit. S/U grading.

299M. Research Methods in Organizations and Management. (4) Seminar, three hours. Designed for Ph.D. students. Methodological issues in management research. Emphasis on identification of research opportunities and formulation and evaluation of research proposals. Alternative goals, settings, and designs. Hypothesis development and testing. Measurement. Implementation considerations. May be repeated for credit. S/U or letter grading.

299R. Research Methods in Management. (4) Discussion, three hours. Designed for Ph.D. students. Provides feedback and evaluation of papers prepared for research requirement. Quarterly meetings to discuss expectations of research committee and Doctoral Office. Students must enroll the term in which they are submitting their research paper. May be repeated for credit. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

400. Mathematics for Management. (4) Lecture, three hours. Limited to graduate students. General mathematics review for M.B.A. students. Fundamental mathematics, including topics from algebra, differential calculus in single and multiple variables, logarithmic and exponential functions, probability, and statistics; applications, including economic theory, finance, time value of money, inventory management, linear programming, and mathematical models. S/U grading.

401A-401B. Managerial Problem Solving. (3-3) Discussion, three hours. Use of international business simulation and series of complex multifaceted cases to learn to apply M.B.A. core disciplines in real-world globally focused business problems. In Progress (401A) and letter (401B) grading.

402. Data and Decisions. (4) Lecture, three hours. Topics include probabilities, random variables (expectation, variance, covariance, normal random variables), decision trees, estimation, hypothesis testing, and multiple regression models. Emphasis on actual business problems and data. Letter grading.

403. Financial Accounting. (4) Lecture, three hours. Designed for graduate students. Introduction to fundamental financial accounting methods and procedures, with emphasis on financial statements. Provides basis for firm understanding of "language of business"—accounting. Letter grading.

404. Information Systems. (4) Lecture, three hours. Designed for graduate students. Introduction to information systems in organizations from perspective of general manager. Managerial and strategic uses of information systems, information technology that underlies these systems, and ways such systems are developed and managed. S/U or letter grading.

405. Managerial Economics. (4) Lecture, three hours. Designed for graduate students. Analysis of consumer, producer, and market behavior. Market structure, pricing, and resource allocation. Applications to managerial strategy and public policy, with emphasis on competition, market power, and externalities. Letter grading.

- 406. Global Macroeconomy. (4)** Lecture, three hours. Requisites: courses 402, 403, 405. Provides analytical framework required for understanding way changing macroeconomic conditions in world economy affect economic growth, inflation, interest rates behavior, exchange rate determination, global competitiveness, unemployment, and trade account. Provides skills to enable students to assess critically how developments in world economy affect particular industry environments. Letter grading.
- 407. Managerial Model Building. (4)** Lecture, three hours. Requisite: course 402. Introduction to uses of analytical methods for making strategic, tactical, and operational decisions arising from accounting, finance, marketing, and production, with focus on three key areas in problem solving: formal problem definition, computer model formulation, alternatives evaluation. Letter grading.
- 408. Financial Markets. (2)** Lecture, 90 minutes. Provides foundation for all fundamental concepts in investments. Topics include discounting and present values, bond and stock valuation, risk and return, constructing optimal portfolios, asset pricing models, and introduction to options and futures markets. Letter grading.
- 409. Organizational Behavior. (4)** Lecture, three hours. Introduction to human resource management function and management of human behavior in organizations. Emphasis on relationships among individuals, groups, and organizational units as they influence managerial process and development of prospective general managers. Letter grading.
- 410. Operations Technology Management. (4)** Lecture, three hours. Requisites: courses 402, 403. Principles and decision analysis related to effective utilization of factors of production in manufacturing and nonmanufacturing activities for both intermittent and continuous systems. Production organizations, analytical models and methods, facilities design, and design of control systems for production operations. Letter grading.
- 411A. Marketing Management I. (2)** Lecture, 90 minutes. Principles of market-driven managerial decision making: consumer, competitor, and company analysis, market segmentation, definition of target markets, and product positioning. Management of marketing function: product and pricing decisions, channels of distribution, marketing communications. Letter grading.
- 411B. Marketing Management II. (4)** Lecture, three hours. Requisite: course 411A. Examination of analytical tools to gauge market attractiveness and to allocate resources to elements of marketing mix. Topics include market sizing based on diffusion of innovation and trial-and-repeat processes, customer preference measurement and market segmentation techniques, and optimal marketing resource allocation across products and customers. Letter grading.
- 412. Management of Organizations. (4)** Lecture, three hours. Preparation: completion of first-year core program. Integrative approach to theory and practice of management in complex organizations, emphasizing managerial roles in designing organizational structures, creating/maintaining planning, control, information, incentive systems, different patterns of human interaction such structures and systems tend to produce.
- 413A. Personal Computing for Managers. (4)** Lecture, three hours. Designed for graduate students. Personal computing in support of strategic analysis, decision making, and management communication. Use of personal productivity tools and network resources. Accessing publicly available information. Emphasis on hands-on exercises. S/U or letter grading.
- 413B. Advanced Topics in Managerial Computing. (4)** Lecture, three hours. Designed for graduate students. New information technology for personal computing by managers. In-depth study of a specific new technology. Extensive hands-on assignments. S/U or letter grading.
- 420. Business Strategy. (4)** Lecture, three hours. Evaluation and formulation of organization's overall policies and strategies. Economic, heuristic, and social process approaches to policy formulation, environmental analysis, and organizational appraisal. Senior management's role in managing policy process. Letter grading.
- 421A. Management Communications I. (1)** Lecture, 30 minutes; laboratory, one hour. Strategies and techniques for more effective individually written managerial communications such as memos, reports, decision recommendations, etc. Emphasis on analytically based persuasive writing. S/U grading.
- 421B. Management Communications II. (1)** Lecture, 30 minutes; laboratory, one hour. Strategies and techniques for more effective preparation of group writing assignments in managerial contexts where multiple audiences are important. Issues include achieving a single voice, establishing appropriate tone, incorporation of multiple points of view, etc. S/U grading.
- 422. Analysis and Communications. (4)** Discussion, three hours. Designed for graduate students. Study and practice of oral and written management communications, including audience analysis, persuasion, revising and editing, presentation of technical information, and uses of computer technology. Organized around writing and speaking exercises. Personal attention to students' written communications and oral presentations.
- 430. Corporate Finance. (4)** Lecture, three hours. Requisite: course 408. Consideration of broad range of issues faced by corporate financial managers. Analysis of firm's investment and financing decisions. Impact on firm of agency costs and asymmetric information. Study of mergers and acquisitions through use of empirical studies. Security design also covered. Letter grading.
- 444A-444B. Applied Management Research: Two-Quarter Plan. (4-4)** Fieldwork, four hours. Must be taken in second year (or its equivalent for part-time students). Supervised study of an organization, including establishment of client/consultant relationships, identification of problems or strategic questions, design of study, collection and analysis of data, development and reporting of implementable recommendations. In Progress (444A) and S/U or letter (444B) grading.
- 445. Applied Management Research. (8)** Fieldwork, eight hours. Must be taken in second year (or its equivalent for part-time students). Supervised study of an organization, including establishment of client/consultant relationships, identification of problems or strategic questions, design of study, collection and analysis of data, development and reporting of implementable recommendations. Letter grading.
- 451. Fieldwork in Organizational Development. (2 to 12)** Fieldwork, to be arranged. Requisite: course 284B. Supervised practical fieldwork in organizational development consultation in interpersonal, group, intergroup, total organization, and interorganizational settings. S/U or letter grading.
- 452. Fieldwork in Technical Assistance for Minority Business Enterprise. (1 to 4)** Preparation: completion of first year of master's program. Supervised field experience in business consulting and other forms of technical assistance for business firms and management in ethnic communities; seminars and other shared learning experiences in transmitting business administration technology to the urban ghetto.
- 453. Fieldwork in Arts Management. (4 to 12)** Supervised field experience and practical work in all phases of an arts organization (pictorial, performing, or community), concentrating on its managerial problems and its relationship to the community and society in general.
- 454. Fieldwork in Organizations. (4)** Fieldwork, to be arranged. Preparation: completion of two terms of M.B.A. program. Supervised, nonpaid practical experience or fieldwork in an organization as an intern or fellow. Execution of predetermined assignment(s) pursuant to a defined program of study which may include formal coursework. May not be repeated for credit. S/U grading.
- 455E. International Exchange Program. (2 to 16)** Lecture, 30 hours; discussion, 10 hours. Students attend up to four M.B.A.-level courses at institutions with exchange agreements with Anderson School. Some courses may be taught in local language. In addition to learning subject matter of courses, intent is to provide opportunity for students to enhance their knowledge of region while exchanging ideas and views with their peers at that institution. S/U or letter grading.
- 457. Fieldwork in Investment Management. (4)** Discussion, three hours. Use of academic theories learned in a practical experience by managing a portfolio started with donated funds. Mirrors situations experienced by typical money management firms and includes investment strategy, asset allocation, security analysis, and organizational issues. S/U or letter grading.
- 461A. Leadership Foundations I. (2)** (Formerly numbered 461.) Lecture, two hours. Limited to Executive M.B.A. Program students. Focus on individual problem-solving and decision-making skills. Alternative conceptual frameworks presented for augmenting diagnostic and decision-making skills of individuals. Use of readings, cases, decision simulations, and discussions to explore areas of charting job and career progress, working with others, and shaping work culture. S/U or letter grading.
- 461B. Leadership Foundations II. (1)** Lecture, one hour. Limited to Executive M.B.A. Program students. Continuation of course 461A, with focus on development of self-assessment and self-reflection skills. Facilitation of self-evaluation of leadership strengths and weaknesses, with emphasis on individual problem solving and decision making and team design and development. Readings, cases, decision simulations, peer coaching, and discussions. In Progress grading (credit to be given only on completion of course 461C).
- 461C. Leadership Foundations II. (1)** Lecture, one hour. Limited to Executive M.B.A. Program students. Continuation of course 461B. Further exploration of leadership strengths and weaknesses, with emphasis on individual peer coaching, conflict management, individual goal setting, and goal achievement. Readings, cases, decision simulations, peer coaching, and discussions. S/U grading.
- 461D. Leadership Foundations III. (1)** Lecture, one hour. Limited to Executive M.B.A. Program students. Continuation of course 461C. Facilitation of self-evaluation of leadership strengths and weaknesses, with emphasis on career development, social networks, and organizational design. Readings, cases, decision simulations, peer coaching, and discussions. In Progress grading (credit to be given only on completion of course 461E).
- 461E. Leadership Foundations III. (1)** Lecture, one hour. Limited to Executive M.B.A. Program students. Continuation of course 461D. Further exploration of leadership strengths and weaknesses, with emphasis on individual leadership and organizational change. Readings, cases, decision simulations, peer coaching, and discussions. S/U grading.
- 462. Economic Analysis for Managers. (4)** Limited to Executive M.B.A. Program students. Policy-oriented problems in antitrust, tax securities, and environmental regulation. Concepts of microeconomic theory illustrated. Topics include traditional antitrust regulations, new trends in antitrust, private versus government antitrust, securities regulation, environmental regulations, and a business firm's optimal response to regulation.
- 463. Data Analysis and Management Decisions under Uncertainty. (4)** Lecture, four hours. Limited to Executive M.B.A. Program students. Survey of statistical model building, with emphasis on managerial interpretation of statistical summary of data. Classical statistics covered through multiple regression to support courses in finance and marketing that follow. Fundamental approaches to decision making under uncertainty. S/U or letter grading.
- 464. Managerial Accounting. (4)** Limited to Executive M.B.A. Program students. Familiarizes the manager with functions of accounting by focusing on use

of external financial reports for evaluating corporate performance and use of accounting information for internal planning and control.

465A. Quantitative Methods for Managers. (2) Lecture, two hours. Limited to Executive M.B.A. Program students. Survey of modeling approaches to managerial planning and decisions. Emphasis on ability to recognize situations where models can be used advantageously, to work effectively with model building specialists, and to make good use of models once they have been developed. S/U or letter grading.

465B. Game Theory. (2) Lecture, two hours. Limited to Executive M.B.A. Program students. Conceptual framework for thinking strategically about business decisions. Examination of interactions between firm and parties external to it through lens of game theory. Framework based on ideas underlying game theory, such as recognizing interdependencies among players, getting away from win-lose mindset, importance of added value of players, anticipating other players' reactions to one's own actions. S/U or letter grading.

466A. Financial Policy for Managers. (4) Lecture, four hours. Limited to Executive M.B.A. Program students. Modern financial management deals with decision making under uncertainty for corporate financial management, portfolio investment decisions, financial institutions, and international financial management. Focus on learning sound theoretical tools and applying them in casework. S/U or letter grading.

466B. Advanced Financial Policy for Managers. (4) Lecture, four hours. Limited to Executive M.B.A. Program students. Modern financial management deals with decision making under uncertainty for corporate financial management, portfolio investment decisions, financial institutions, and international financial management. Focus on learning sound theoretical tools and applying them in casework. S/U or letter grading.

467. Management Issues in Information Systems. (2) Limited to Executive M.B.A. Program students. Growing role of information systems in the corporation and how they change ways of doing business. Examples from airlines, health, computer, communications, distribution, and publishing industries. Strategic, organizational, and societal implications.

468. Macroeconomics and Economic Forecasting. (4) Lecture, four hours. Limited to Executive M.B.A. Program students. Macroeconomic theory and its application to business forecasting. Major economic indicators and their historical description of the U.S. economy; theoretical tools that business economists use to analyze impacts of monetary and fiscal policy; macroeconomic techniques applicable to business decisions. S/U or letter grading.

469. Management of Human Resources. (4) Limited to Executive M.B.A. Program students. Introduction to major areas of human resource management—personnel management, labor economics, labor law, and labor relations—accomplished by examining some major concepts, theories, and research related to each of these topic areas, as well as some practical problems for managers posed by each.

470A. Introduction to Strategic Management Research. (2) Fieldwork, two hours. Limited to Executive M.B.A. Program students. Methods of organizational and strategic analysis to determine relationship of organization with its environment. In Progress grading (credit to be given only on completion of courses 470B and 470C).

470B. Strategic Management Research. (4) Fieldwork, four hours. Limited to Executive M.B.A. Program students. Preparation of strategic overview of selected company entailing collection and analysis of primary and secondary data, including (but not limited to) interviews of corporate executives, corporate financial and marketing data, industry reports, and customer and competitor interviews and/or surveys. In Progress grading (credit to be given only on completion of course 470C).

470C. Strategic Management Research. (4) Fieldwork, four hours. Limited to Executive M.B.A. Program students. Further research and analysis of one strategic issue facing selected company and identified

in course 470B. Presentation of final reports and evaluation of student efforts by corporate personnel. S/U or letter grading.

470D. Seminar: Policy Analysis. (2) Seminar, two hours. Limited to Executive M.B.A. Program students. Site visit to selected company, presentation of final reports, and evaluation of student efforts by corporate personnel. S/U or letter grading.

471A-471B. Management Practicum. (2-2) Lecture, three hours. Two-term individual or group (three to five students) project on global strategic issues designed to allow students to employ and enhance concepts learned in classroom. In Progress (471A) and letter (471B) grading.

472A. Marketing Strategy and Policy. (4) Lecture, four hours. Limited to Executive M.B.A. Program students. Strategic marketing decisions, including development of marketing objectives and strategies and implementation of these strategies through pricing, channel, promotion, and new product decisions. S/U or letter grading.

472B. Product Innovation and Marketing. (4) Lecture, four hours. Limited to Executive M.B.A. Program students. Exploration of innovation and marketing of products and services to customers. Use of creativity tools, customer research, and marketing science to create value and allocate resources so as to maximize revenues and profits that result. S/U or letter grading.

473A. Managerial and Organizational Processes. (2) Lecture, four hours every other week for 13 weeks. Limited to Executive M.B.A. Program students. Macroanalytic issues, including intergroup relations, design and functioning of organizations, and relationships of organizations to their environment. S/U or letter grading.

473B. Customer Information Strategy. (2) Lecture, four hours every other week for 13 weeks. Limited to Executive M.B.A. Program students. Development of a customer orientation as a necessity for success in the highly competitive global marketplace, including principles of customer orientation, information as a strategic asset, customer equity, market forecasting, measuring effects of marketing investments, and customer response-based strategy. S/U or letter grading.

474. Operations and Technology Management: Systems, Strategies, and Policies. (4) Lecture, three hours. Limited to Executive M.B.A. Program students. Analysis of strategic and operating policies and decisions for systems that produce goods and services. Examination of role of comprehensive planning, inventories, scheduling of resources, distribution systems, and system location. Comprehensive operating problems.

475. International Managerial Policies and Strategies. (4) Limited to Executive M.B.A. Program students. Study of economic and business decisions in an international context, with emphasis on formulation and implementation of management strategies in multinational enterprises. Application of concepts of international economic analysis and exploration of international corporate strategies.

476. Competitive Strategy and Business Policy. (4) Limited to Executive M.B.A. Program students. Study of general management task of forging a corporate competitive strategy. Emphasis on economics of business rivalry within a variety of industrial settings and implications of changing environments on business strategy.

477. The Manager and Business/Society Relationships. (4) Limited to Executive M.B.A. Program students. While organizations may, to some extent, choose their immediate environments, there are broad environmental factors and trends that affect most, if not all, organizations. Examination of emerging trends in key areas of government regulation, labor relations, international trade, basic economic structure, and social responsibility.

478. Selected Topics in Management. (2 to 4) Seminar, 90 minutes to three hours. Limited to Executive M.B.A. Program students. Examination of selected problems and issues in an area of current concern in management. S/U or letter grading.

480. Corporate Governance. (4) Lecture, three hours. Foundations for members of corporate boards of directors to understand their responsibilities, hone their skills, and learn to improve their practices. Topics include legal and moral duties as directors, risk management, managing top management team of corporation. Letter grading.

481. Contemporary Issues in Business: Services Marketing and Customer Asset Management. (4) Lecture, three hours. Designed for prospective users of research results rather than for specialists in research. Market research is aid to management decision making. Development of problem-analysis skills, providing knowledge of concepts and methods of marketing research, with increased sensitivity to limitations of marketing data. Letter grading.

482. Negotiations Behavior. (4) Lecture, three hours. Presentation of theoretical principles and concepts from psychology, sociology, and economics through lectures and readings, with focus primarily on improving practical negotiating skills through experiential learning (i.e., negotiations simulations). Participants learn not only to enhance their individual abilities in dyadic and group situations but also to analyze contexts for most effective application of these skills. Letter grading.

483. Management of Technology and Innovation. (4) Lecture, three hours. Problems of managing technological innovation in Asia. Topics include incorporation of technological consideration into strategy, adoption of technological innovation, promoting innovation through organizational design and leadership, e-business, and m-business. Letter grading.

484. Asian Business Environment. (4) Lecture, three hours. Theoretical issues related to analysis of countries' economic, political, and social conditions. Topics include political risk analysis, demographics, urbanization. Application to scenario planning in Asia-Pacific region/countries. Letter grading.

485. Corporate Entrepreneurship. (4) Lecture, three hours. Managerial efforts aimed at identification, development, and exploitation of technical and organizational innovations, management of new product or process developments, and effective new venture management in context of large corporations in manufacturing and service industries. Development of awareness and understanding of range, scope, and complexity of issues related to creation of organizational environment that is supportive of entrepreneurial endeavors, and insight concerning effective implementation of technological and organizational innovations in corporate setting. Letter grading.

486. Strategic Leadership and Strategic Implementation. (4) Lecture, three hours. Designed to address several fundamental aspects of leading complex organizations, with emphasis on important tasks of developing well-aligned, high-performance organizations and on challenges of leading change in organizations. Enables students to develop organized point of view on strategic leadership and to increase their awareness of themselves as leaders. Letter grading.

501. Cooperative Program. (2 to 8) Preparation: consent of UCLA AGSM graduate adviser and assistant dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. Research in Management. (1 to 8) Directed individual study or research. May be repeated. S/U or letter grading.

597. Preparation for Qualifying Examinations. (4 or 12) Preparation for master's comprehensive examination or Ph.D. qualifying examinations. S/U grading.

598. Thesis Research in Management. (4 or 12) Research for and preparation of master's thesis. May be repeated. S/U grading.

599. Ph.D. Dissertation Research in Management. (4 or 12) Research for and preparation of Ph.D. dissertation. S/U grading.

MATERIALS SCIENCE AND ENGINEERING

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Qibing Pei, Ph.D., *Vice Chair*

Professors

Russel E. Caflisch, Ph.D.
Yong Chen, Ph.D.
Bruce S. Dunn, Ph.D. (*Nippon Sheet Glass Company Professor of Materials Science*)
Nasr M. Ghoniem, Ph.D.
Mark S. Goorsky, Ph.D.
Vijay Gupta, Ph.D.
Robert F. Hicks, Ph.D.
Richard B. Kaner, Ph.D.
Vidvuds Ozolins, Ph.D.
Qibing Pei, Ph.D.
King-Ning Tu, Ph.D.
Ya-Hong Xie, Ph.D.
Jenn-Ming Yang, Ph.D.
Yang Yang, Ph.D.

Professors Emeriti

Alan J. Ardell, Ph.D.
David L. Douglass, Ph.D.
William Klement, Jr., Ph.D.
John D. Mackenzie, Ph.D. (*Nippon Sheet Glass Company Professor Emeritus of Materials Science*)
Kanji Ono, Ph.D.
Aly H. Shabaik, Ph.D.
George H. Sines, Ph.D.
Christian N.J. Wagner, Dr.rer.nat.
Alfred S. Yue, Ph.D.

Associate Professors

Ioanna Kakoulli, D.Phil.
Benjamin M. Wu, D.D.S., Ph.D.

Assistant Professors

Yu Huang, Ph.D.
Suneel Kodambaka, Ph.D.

Adjunct Professors

Harry Patton Gillis, Ph.D.
Marek A. Przystupa, Ph.D.

Adjunct Associate Professor

Eric P. Bescher, Ph.D.

Scope and Objectives

At the heart of materials science is an understanding of the microstructure of solids. "Microstructure" is used broadly in reference to solids viewed at the subatomic (electronic) and atomic levels, and the nature of the defects at these levels. The microstructure of solids at various levels profoundly influences the mechanical, electronic, chemical, and biological properties of solids. The phenomenological and mechanistic relationships between microstructure and the macroscopic properties of

solids are, in essence, what materials science is all about.

Materials engineering builds on the foundation of materials science and is concerned with the design, fabrication, and optimal selection of engineering materials that must simultaneously fulfill dimensional, property, quality control, and economic requirements.

The department also has a program in electronic materials that provides a broad-based background in materials science, with opportunity to specialize in the study of those materials used for electronic and optoelectronic applications. The program incorporates several courses in electrical engineering in addition to those in the materials science curriculum.

The undergraduate program leads to the Bachelor of Science degree in Materials Engineering. Students are introduced to the basic principles of metallurgy and ceramic and polymer science as part of the department's Materials Engineering major. A joint major field, Chemistry/Materials Science, is offered to students enrolled in the Department of Chemistry and Biochemistry (College of Letters and Science).

The graduate program allows for specialization in one of the following fields: ceramics and ceramic processing, electronic and optical materials, and structural materials.

Undergraduate Study

The Materials Engineering major is a designated capstone major. Students undertake two individual projects involving materials selection, treatment, and serviceability. Successful completion requires working knowledge of physical properties of materials, and strategies and methodologies of using materials properties in the materials selection process. Students learn and work independently and practice leadership and teamwork in and across disciplines. They are also expected to communicate effectively in oral, graphic, and written forms.

Materials Engineering B.S.

Capstone Major

The ABET-accredited materials engineering program is designed for students who wish to pursue a professional career in the materials field and desire a broad understanding of the relationship between microstructure and properties of materials. Metals, ceramics, and polymers, as well as the design, fabrication, and testing of metallic and other materials such as oxides, glasses, and fiber-reinforced composites, are included in the course contents.

Materials Engineering Option

Preparation for the Major

Required: Chemistry and Biochemistry 20A, 20B, 20L; Computer Science 31 (or another programming course approved by the Faculty Executive Committee); Materials Science and Engineering 10, 90L; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 1C (or Electrical Engineering 1).

The Major

Required: Chemical Engineering 102A (or Mechanical and Aerospace Engineering 105A), Civil and Environmental Engineering 101 (or Mechanical and Aerospace Engineering 101), 108, Electrical Engineering 100, Materials Science and Engineering 104, 110, 110L, 120, 130, 131, 131L, 132, 143A, 150, 160, Mechanical and Aerospace Engineering 181A or 182A; two laboratory courses (4 units) from Materials Science and Engineering 121L, 141L, 143L, 161L; three technical breadth courses (12 units) selected from an approved list available in the Office of Academic and Student Affairs; one capstone design course (Materials Science and Engineering 140); and three major field elective courses (12 units) from Chemical Engineering C114, Civil and Environmental Engineering 130, 135A, Electrical Engineering 2, 123A, 123B, 124, Materials Science and Engineering 111, 121, 122, 151, 161, 162, Mechanical and Aerospace Engineering 156A, 166C, plus at least one elective course (4 units) from Chemistry and Biochemistry 30A, 30AL, Electrical Engineering 131A, Materials Science and Engineering 170, 171, Mathematics 170A, or Statistics 100A.

For information on University and general education requirements, see the College and Schools section earlier in this catalog.

Electronic Materials Option

Preparation for the Major

Required: Chemistry and Biochemistry 20A, 20B, 20L; Computer Science 31 (or another programming course approved by the Faculty Executive Committee); Electrical Engineering 10; Materials Science and Engineering 10, 90L; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 1C (or Electrical Engineering 1).

The Major

Required: Chemical Engineering 102A (or Mechanical and Aerospace Engineering 105A), Electrical Engineering 101, 121B, Materials Science and Engineering 104, 110, 110L, 120 (or Electrical Engineering 2), 121, 121L, 122, 130, 131, 131L, Mechanical and Aerospace Engineering 101, and 181A or 182A; four courses (16 units) from Electrical Engineering 123A, 123B, Materials Science and Engineering 132, 150, 160; 4 laboratory units from Electrical Engineering 172L, Materials Science and Engineering 141L, 161L, 199; three technical breadth courses (12 units) selected from an approved list available in the Office of Academic and Student Affairs; one capstone design course (Materials Science and Engineering 140); and one major field elective course (4 units) from Electrical Engineering 110, 124, 131A, 172, Materials Science and Engineering 111, 143A, 162.

For information on University and general education requirements, see the College and Schools section earlier in this catalog.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Materials Science and Engineering offers Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Materials Science and Engineering.

Materials Science and Engineering

Lower Division Courses

10. Freshman Seminar: New Materials. (1) Seminar, one hour; outside study, two hours. Preparation: high school chemistry and physics. Not open to students with credit for course 104. Introduction to basic concepts of materials science and new materials vital to advanced technology. Microstructural analysis and various material properties discussed in conjunction with such applications as biomedical sensors, pollution control, and microelectronics. Letter grading.

90L. Physical Measurement in Materials Engineering. (2) Laboratory, four hours; outside study, two hours. Various physical measurement methods used in materials science and engineering. Mechanical, thermal, electrical, magnetic, and optical techniques. Letter grading.

Upper Division Courses

104. Science of Engineering Materials. (4) Lecture, three hours; discussion, one hour; outside study, eight hours. Requisites: Chemistry 20A, 20B, 20L, Physics 1A, 1B. General introduction to different types of materials used in engineering designs: metals, ceramics, plastics, and composites, relationship between structure (crystals and microstructure) and properties of technological materials. Illustration of their fundamental differences and their applications in engineering. Letter grading.

M105. Principles of Nanoscience and Nanotechnology. (4) (Same as Engineering M101.) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: Chemistry 20, and Electrical Engineering 1 or Physics 1C. Introduction to underlying science encompassing structure, properties, and fabrication of technologically important nanoscale systems. New phenomena that emerge in very small systems (typically with feature sizes below few hundred nanometers) explained using basic concepts from physics and chemistry. Chemical, optical, and electronic properties, electron transport, structural stability, self-assembly, templated assembly and applications of various nanostructures such as quantum dots, nanoparticles, quantum wires, quantum wells and multilayers, carbon nanotubes. Letter grading.

110. Introduction to Materials Characterization A (Crystal Structure, Nanostructures, and X-Ray Scattering). (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 104. Modern methods of materials characterization; fundamentals of crystallography, properties of X rays, X-ray scattering; powder method, Laue method; determination of crystal structures; phase diagram determination; high-resolution X-ray diffraction methods; X-ray spectroscopy; design of materials characterization procedures. Letter grading.

110L. Introduction to Materials Characterization A Laboratory. (2) Laboratory, four hours; outside study, two hours. Requisite: course 104. Experimental techniques and analysis of materials through X-ray scattering techniques; powder method, crystal structure determination, high-resolution X-ray diffraction methods, and special projects. Letter grading.

111. Introduction to Materials Characterization B (Electron Microscopy). (4) Lecture, three hours; laboratory, two hours; outside study, seven hours. Requisites: courses 104, 110. Characterization of microstructure and microchemistry of materials; transmission electron microscopy; reciprocal lattice, electron diffraction, stereographic projection, direct observation of defects in crystals, replicas; scanning electron microscopy: emissive and reflective modes; chemical analysis; electron optics of both instruments. Letter grading.

C112. Introduction to Archaeological Materials Science: Scientific Methodologies, Techniques, and Interpretation. (4) Lecture, three hours; laboratory, two hours. Preparation: general chemistry, or inorganic and organic chemistry. Recommended requisite: course 110. Several basic scientific techniques employed for examination of archaeological and cultural artifacts to answer questions of anthropological significance and their state of preservation. Theoretical and hands-on instruction to provide fundamentals of portable/field and analytical techniques such as UV/VNIR spectrophotometry, X-ray fluorescence (XRF), X-ray diffraction (XRD), scanning electron microscopy and energy dispersive spectroscopy (SEM-EDS), and others. Examination and analysis protocols, sample preparation techniques, and methods of scientific analysis and interpretation for study of organic and inorganic materials of archaeological and cultural significance. Concurrently scheduled with course CM212. Letter grading.

120. Physics of Materials. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: courses 104, 110 (or Chemistry 113A). Introduction to electrical, optical, and magnetic properties of solids. Free electron model, introduction to band theory and Schrödinger wave equation. Crystal bonding and lattice vibrations. Mechanisms and characterization of electrical conductivity, optical absorption, magnetic behavior, dielectrical properties, and p-n junctions. Letter grading.

121. Materials Science of Semiconductors. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 120. Structure and properties of elemental and compound semiconductors. Electrical and optical properties, defect chemistry, and doping. Electronic materials analysis and characterization, including electrical, optical, and ion-beam techniques. Heterostructures, band-gap engineering, development of new materials for optoelectronic applications. Letter grading.

121L. Materials Science of Semiconductors Laboratory. (2) Lecture, 30 minutes; discussion, 30 minutes; laboratory, two hours; outside study, three hours. Corequisite: course 121. Experiments conducted on materials characterization, including measurements of contact resistance, dielectric constant, and thin film biaxial modulus and CTE. Letter grading.

122. Principles of Electronic Materials Processing. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 104. Description of basic semiconductor materials for device processing; preparation and characterization of silicon, III-V compounds, and films. Discussion of principles of CVD, MOCVD, LPE, and MBE; metals and dielectrics. Letter grading.

130. Phase Relations in Solids. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: course 104, and Chemical Engineering 102A or Mechanical and Aerospace Engineering 105A. Summary of thermodynamic laws, equilibrium criteria, solution thermodynamics, mass-action law, binary and ternary phase diagrams, glass transitions. Letter grading.

131. Diffusion and Diffusion-Controlled Reactions. (4) Lecture, four hours; outside study, eight hours. Requisite: course 130. Diffusion in metals and ionic solids, nucleation and growth theory; precipitation from solid solution, eutectoid decomposition, design of heat treatment processes of alloys, growth of intermediate phases, gas-solid reactions, design of oxidation-resistant alloys, recrystallization, and grain growth. Letter grading.

131L. Diffusion and Diffusion-Controlled Reactions Laboratory. (2) Laboratory, two hours; outside study, four hours. Corequisite: course 131. Design of heat-treating cycles and performing experiments to study interdiffusion, growth of intermediate phases, recrystallization, and grain growth in metals. Analysis of data. Comparison of results with theory. Letter grading.

132. Structure and Properties of Metallic Alloys. (4) Lecture, four hours; outside study, eight hours. Requisite: course 131. Physical metallurgy of steels, lightweight alloys (Al and Ti), and superalloys. Strengthening mechanisms, microstructural control methods for strength and toughness improvement. Grain boundary segregation. Letter grading.

C133. Ancient and Historic Metals: Technology, Microstructure, and Corrosion. (4) Lecture, two hours; laboratory, 90 minutes. Processes of extraction, alloying, surface patination, metallic coatings, corrosion, and microstructure of ancient and historic metals. Extensive laboratory work in preparation and examination of metallic samples under microscope, as well as lectures on technology of metallic works of art. Practical instruction in metallographic microscopy. Exploration of phase and stability diagrams of common alloying systems and environments and analytical techniques appropriate for examination and characterization of metallic artifacts. Concurrently scheduled with course CM233. Letter grading.

140. Materials Selection and Engineering Design. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: courses 132, 150, 160. Explicit guidance among myriad materials available for design in engineering. Properties and applications of steels, nonferrous alloys, polymeric, ceramic, and composite materials, coatings. Materials selection, treatment, and serviceability emphasized as part of successful design. Design projects. Letter grading.

141L. Computer Methods and Instrumentation in Materials Science. (2) Laboratory, four hours. Preparation: knowledge of BASIC or C or assembly language. Limited to junior/senior Materials Science and Engineering majors. Interface and control techniques, real-time data acquisition and processing, computer-aided testing. Letter grading.

143A. Mechanical Behavior of Materials. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: course 104, Mechanical and Aerospace Engineering 101. Plastic flow of metals under simple and combined loading, strain rate and temperature effects, dislocations, fracture, microstructural effects, mechanical and thermal treatment of steel for engineering applications. Letter grading.

143L. Mechanical Behavior Laboratory. (2) Laboratory, four hours. Requisites: courses 90L, 143A (may be taken concurrently). Methods of characterizing mechanical behavior of various materials; elastic and plastic deformation, fracture toughness, fatigue, and creep. Letter grading.

150. Introduction to Polymers. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Polymerization mechanisms, molecular weight and distribution, chemical structure and bonding, structure crystallinity, and morphology and their effects on physical properties. Glassy polymers, springy polymers, elastomers, adhesives. Fiber forming polymers, polymer processing technology, plastication. Letter grading.

151. Structure and Properties of Composite Materials. (4) Lecture, four hours; outside study, eight hours. Preparation: at least two courses from 132, 143A, 150, 160. Requisite: course 104. Relationship between structure and mechanical properties of composite materials with fiber and particulate reinforce-

ment. Properties of fiber, matrix, and interfaces. Selection of macrostructures and material systems. Letter grading.

160. Introduction to Ceramics and Glasses. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: courses 104, 130. Introduction to ceramics and glasses being used as important materials of engineering, processing techniques, and unique properties. Examples of design and control of properties for certain specific applications in engineering. Letter grading.

161. Processing of Ceramics and Glasses. (4) Lecture, four hours; discussion, one hour. Requisite: course 160. Study of processes used in fabrication of ceramics and glasses for structural applications, optics, and electronics. Processing operations, including modern techniques of powder synthesis, greenware forming, sintering, glass melting. Microstructure properties relations in ceramics. Fracture analysis and design with ceramics. Letter grading.

161L. Laboratory in Ceramics. (2) Laboratory, four hours. Requisite: course 160. Recommended corequisite: course 161. Processing of common ceramics and glasses. Attainment of specific properties through process control for engineering applications. Quantitative characterization and selection of raw materials. Slip casting and extrusion of clay bodies. Sintering of powders. Glass melting and fabrication. Determination of chemical and physical properties. Letter grading.

162. Electronic Ceramics. (4) Lecture, four hours; outside study, eight hours. Requisites: course 104, Electrical Engineering 1 (or Physics 1C). Utilization of ceramics in microelectronics; thick film and thin film resistors, capacitors, and substrates; design and processing of electronic ceramics and packaging; magnetic ceramics; ferroelectric ceramics and electro-optic devices; optical wave guide applications and designs. Letter grading.

170. Engaging Elements of Communication: Oral Communication. (2) Lecture, one hour; discussion, one hour; outside study, four hours. Comprehensive oral presentation and communication skills provided by building on strengths of individual personal styles in creation of positive interpersonal relations. Skill set prepares students for different types of academic and professional presentations for wide range of audiences. Learning environment is highly supportive and interactive as it helps students creatively develop and greatly expand effectiveness of their communication and presentation skills. Letter grading.

171. Engaging Elements of Communication: Writing for Technical Community. (2) Lecture, one hour; discussion, one hour; outside study, four hours. Comprehensive technical writing skills on subjects specific to field of materials science and engineering. Students write review term paper in selected subject field of materials science and engineering from given set of journal publications. Instruction leads students through several crucial steps, including brainstorming, choosing title, coming up with outline, concise writing of abstract, conclusion, and final polishing. Other subjects include writing style, word choices, and grammar. Letter grading.

CM180. Introduction to Biomaterials. (4) (Same as Biomedical Engineering CM180.) Lecture, three hours; discussion, two hours; outside study, seven hours. Requisites: course 104, or Chemistry 20A, 20B, and 20L. Engineering materials used in medicine and dentistry for repair and/or restoration of damaged natural tissues. Topics include relationships between material properties, suitability to task, surface chemistry, processing and treatment methods, and biocompatibility. Concurrently scheduled with course CM280. Letter grading.

188. Special Courses in Materials Science and Engineering. (4) Seminar, four hours; outside study, eight hours. Special topics in materials science and engineering for undergraduate students taught on experimental or temporary basis, such as those taught by resident and visiting faculty members. May be repeated once for credit with topic or instructor change. Letter grading.

194. Research Group Seminars: Materials Science and Engineering. (4) Seminar, four hours; outside study, eight hours. Designed for undergraduate students who are part of research group. Discussion of research methods and current literature in field or of research of faculty members or students. May be repeated for credit. Letter grading.

199. Directed Research in Materials Science and Engineering. (2 to 8) Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. Occasional field trips may be arranged. May be repeated for credit with school approval. Individual contract required; enrollment petitions available in Office of Academic and Student Affairs. Letter grading.

Graduate Courses

200. Principles of Materials Science I. (4) Lecture, four hours; outside study, eight hours. Requisite: course 120. Lattice dynamics and thermal properties of solids, classical and quantized free electron theory, electrons in a periodic potential, transport in semiconductors, dielectric and magnetic properties of solids. Letter grading.

201. Principles of Materials Science II. (4) Lecture, three hours; outside study, nine hours. Requisite: course 131. Kinetics of diffusional transformations in solids. Precipitation in solids. Nucleation theory. Theory of precipitate growth. Ostwald ripening. Spinodal decomposition. Cellular reactions. Letter grading.

210. Diffraction Methods in Science of Materials. (4) (Formerly numbered 245C.) Lecture, four hours; outside study, eight hours. Requisite: course 110. Theory of diffraction of waves (X rays, electrons, and neutrons) in crystalline and noncrystalline materials. Long- and short-range order in crystals, structural effects of plastic deformation, solid-state transformations, arrangements of atoms in liquids and amorphous solids. Letter grading.

211. Electron Microscopy. (4) (Formerly numbered 244.) Lecture, four hours; outside study, eight hours. Requisite: course 111. Essential features of electron microscopy, geometry of electron diffraction, kinematical and dynamical theories of electron diffraction, including anomalous absorption, applications of theory to defects in crystals. Moiré fringes, direct lattice resolutions, Lorentz microscopy, laboratory applications of contrast theory. Letter grading.

CM212. Introduction to Archaeological Materials Science: Scientific Methodologies, Techniques, and Interpretation. (4) (Same as Conservation M210.) Lecture, three hours; laboratory, two hours. Preparation: general chemistry, or inorganic and organic chemistry. Recommended requisite: course 110. Several basic scientific techniques employed for examination of archaeological and cultural artifacts to answer questions of anthropological significance and their state of preservation. Theoretical and hands-on instruction to provide fundamentals of portable/field and analytical techniques such as UV/VNIR spectrophotometry, X-ray fluorescence (XRF), X-ray diffraction (XRD), scanning electron microscopy and energy dispersive spectroscopy (SEM-EDS), and others. Examination and analysis protocols, sample preparation techniques, and methods of scientific analysis and interpretation for study of organic and inorganic materials of archaeological and cultural significance. Concurrently scheduled with course C112. Letter grading.

M213. Deterioration and Conservation of In-Situ Archaeological and Cultural Materials. (4) (Same as Conservation M236.) Seminar, two hours; laboratory, three hours. Requisites: courses M215 (or Art History M203F or Conservation M250) and M216 (or Conservation M216). Deterioration processes (both natural and man-made) of in-situ and ex-situ archaeological and cultural decorative surfaces (mainly rock art, wall paintings, polychrome sculpture, decorative architectural elements, and mosaics) and on solutions to mitigate, pacify, or arrest decay mechanisms based on preventive, passive, and remedial solutions (latter based on minimum intervention). Sessions include holistic approaches for preservation of archaeological

sites; hydrology of sites; origin and damaging effects of salts; biodegradation; chemical and mechanical weathering; earthquakes, frost, flooding, and vandalism; structural repairs, grouting, cleaning, and desalination; sheltering and limited accessibility; fixing, consolidation, and protective surface treatments. Letter grading.

M215. Techniques and Materials of Archaeological and Cultural Materials: In-Situ and Ex-Situ Architectural Decorative Surfaces. (4) (Same as Art History M203F and Conservation M250.) Seminar, two hours; laboratory, three hours. Requisite: course M216 or C112 or Conservation M210. Recommended: Conservation M215. Designed for graduate conservation and art history students. Principles of archaeological conservation of in-situ and ex-situ monumental archaeological and cultural materials, with focus on rock art, wall paintings, polychrome sculpture, decorative architectural elements, and mosaics, through study of their constituent material and techniques in context of their geographical and chronological occurrence, technological developments, physical and conservation history, and physical location. Lectures, seminars, and case-study presentations, museum and site visits, hands-on laboratory experience, and independent research that incorporates literary survey of archaeological and conservation records, scientific data, and ancient treatises. Letter grading.

M216. Science of Conservation Materials and Methods I. (4) (Same as Conservation M216.) Seminar, one hour; laboratory, three hours. Recommended requisite: course 104. Introduction to physical, chemical, and mechanical properties of conservation materials (employed for preservation of archaeological and cultural materials) and their aging characteristics. Science and application methods of traditional organic and inorganic systems and introduction of novel technology based on biomineralization processes and nanostructured materials. Letter grading.

221. Science of Electronic Materials. (4) Lecture, four hours; outside study, eight hours. Requisite: course 120. Study of major physical and chemical principles affecting properties and performance of semiconductor materials. Topics include bonding, carrier statistics, band-gap engineering, optical and transport properties, novel materials systems, and characterization. Letter grading.

222. Growth and Processing of Electronic Materials. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 120, 130, 131. Thermodynamics and kinetics that affect semiconductor growth and device processing. Particular emphasis on fundamentals of growth (bulk and epitaxial), heteroepitaxy, implantation, oxidation. Letter grading.

223. Materials Science of Thin Films. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 120, 131. Fabrication, structure, and property correlations of thin films used in microelectronics for data and information processing. Topics include film deposition, interfacial properties, stress and strain, electromigration, phase changes and kinetics, reliability. Letter grading.

224. Deposition Technologies and Their Applications. (4) Lecture, four hours; outside study, eight hours. Examination of physics behind majority of modern thin film deposition technologies based on vapor phase transport. Basic vacuum technology and gas kinetics. Deposition methods used in high-technology applications. Theory and experimental details of physical vapor deposition (PVD), chemical vapor deposition (CVD), plasma-enhanced chemical vapor deposition processes. Letter grading.

225. Materials Science of Surfaces. (4) Lecture, four hours; outside study, eight hours. Requisites: course 120, Chemistry 113A. Introduction to atomic and electronic structure of surfaces. Survey of methods for determining composition and structure of surfaces and near-surface layers of solid-state materials. Emphasis on scanning probe microscopy, Auger electron spectroscopy, X-ray photoelectron spectroscopy, ultraviolet photoelectron spectroscopy, secondary ion mass spectrometry, ion scattering spectroscopy, and Rutherford backscattering spectrometry. Applications

in microelectronics, optoelectronics, metallurgy, polymers, biological and biocompatible materials, and catalysis. Letter grading.

226. Si-CMOS Technology: Selected Topics in Materials Science. (4) Lecture, three hours; discussion, one hour; outside study, eight hours. Recommended preparation: Electrical Engineering 221B. Requisites: courses 130, 131, 200, 221, 222. Selected topics in materials science from modern Si-CMOS technology, including technological challenges in high k /metal gate stacks, strained Si FETs, SOI and three-dimensional FETs, source/drain engineering including transient-enhanced diffusion, nonvolatile memory, and metallization for ohmic contacts. Letter grading.

CM233. Ancient and Historic Metals: Technology, Microstructure, and Corrosion. (4) (Same as Conservation M246.) Lecture, two hours; laboratory, 90 minutes. Designed for graduate conservation and materials science students. Processes of extraction, alloying, surface patination, metallic coatings, corrosion, and microstructure of ancient and historic metals. Extensive laboratory work in preparation and examination of metallic samples under microscope, as well as lectures on technology of metallic works of art. Practical instruction in metallographic microscopy. Exploration of phase and stability diagrams of common alloying systems and environments and analytical techniques appropriate for examination and characterization of metallic artifacts. Concurrently scheduled with course C133. Letter grading.

243A. Fracture of Structural Materials. (4) Lecture, four hours; laboratory, two hours; outside study, four hours. Requisite: course 143A. Engineering and scientific aspects of crack nucleation, slow crack growth, and unstable fracture. Fracture mechanics, dislocation models, fatigue, fracture in reactive environments, alloy development, fracture-safe design. Letter grading.

243C. Dislocations and Strengthening Mechanisms in Solids. (4) Lecture, four hours; outside study, eight hours. Requisite: course 143A. Elastic and plastic behavior of crystals, geometry, mechanics, and interaction of dislocations, mechanisms of yielding, work hardening, and other strengthening. Letter grading.

246B. Structure and Properties of Glass. (4) Lecture, four hours; outside study, eight hours. Requisite: course 160. Structure of amorphous solids and glasses. Conditions of glass formation and theories of glass structure. Mechanical, electrical, and optical properties of glass and relationship to structure. Letter grading.

246D. Electronic and Optical Properties of Ceramics. (4) Lecture, four hours; outside study, eight hours. Requisite: course 160. Principles governing electronic properties of ceramic single crystals and glasses and effects of processing and microstructure on these properties. Electronic conduction, ferroelectricity, and photochromism. Magnetic ceramics. Infrared, visible, and ultraviolet transmission. Unique application of ceramics. Letter grading.

250B. Advanced Composite Materials. (4) Lecture, four hours; outside study, eight hours. Preparation: B.S. in Materials Science and Engineering. Requisite: course 151. Fabrication methods, structure and properties of advanced composite materials. Fibers; resin-, metal-, and ceramic-matrix composites. Physical, mechanical, and nondestructive characterization techniques. Letter grading.

251. Chemistry of Soft Materials. (4) Lecture, four hours. Introduction to organic soft materials, including essential basic organic chemistry and polymer chemistry. Topics include three main categories of soft materials: organic molecules, synthetic polymers, and biomolecules and biomaterials. Extensive description and discussion of structure-property relationship, spectroscopic and experimental techniques, and preparation methods for various soft materials. Letter grading.

252. Organic Polymer Electronic Materials. (4) Lecture, four hours; outside study, eight hours. Preparation: knowledge of introductory organic chemistry and polymer science. Introduction to organic electronic materials with emphasis on materials chemistry

and processing. Topics include conjugated polymers; heavily doped, highly conducting polymers; applications as processable metals and in various electrical, optical, and electrochemical devices. Synthesis of semiconductor polymers for organic light-emitting diodes, solar cells, thin-film transistors. Introduction to emerging field of organic electronics. Letter grading.

270. Computer Simulations of Materials. (4) Lecture, four hours; outside study, eight hours. Introduction to modern methods of computational modeling in materials science. Topics include basic statistical mechanics, classical molecular dynamics, and Monte Carlo methods, with emphasis on understanding basic physical ideas and learning to design, run, and analyze computer simulations of materials. Use of examples from current literature to show how these methods can be used to study interesting phenomena in materials science. Hands-on computer experiments. Letter grading.

271. Electronic Structure of Materials. (4) Lecture, four hours; outside study, eight hours. Preparation: basic knowledge of quantum mechanics. Recommended requisite: course 200. Introduction to modern first-principles electronic structure calculations for various types of modern materials. Properties of electrons and interatomic bonding in molecules, crystals, and liquids, with emphasis on practical methods for solving Schrödinger equation and using it to calculate physical properties such as elastic constants, equilibrium structures, binding energies, vibrational frequencies, electronic band gaps and band structures, properties of defects, surfaces, interfaces, and magnetism. Extensive hands-on experience with modern density-functional theory code. Letter grading.

272. Theory of Nanomaterials. (4) Lecture, four hours; outside study, eight hours. Strongly recommended requisite: course 200. Introduction to properties and applications of nanoscale materials, with emphasis on understanding of basic principles that distinguish nanostructures (with feature size below 100 nm) from more common microstructured materials. Explanation of new phenomena that emerge only in very small systems, using simple concepts from quantum mechanics and thermodynamics. Topics include structure and electronic properties of quantum dots, wires, nanotubes, and multilayers, self-assembly on surfaces and in liquid solutions, mechanical properties of nanostructured metamaterials, molecular electronics, spin-based electronics, and proposed realizations of quantum computing. Discussion of current and future directions of this rapidly growing field using examples from modern scientific literature. Letter grading.

CM280. Introduction to Biomaterials. (4) (Same as Biomedical Engineering CM280.) Lecture, three hours; discussion, two hours; outside study, seven hours. Requisites: course 104, or Chemistry 20A, 20B, and 20L. Engineering materials used in medicine and dentistry for repair and/or restoration of damaged natural tissues. Topics include relationships between material properties, suitability to task, surface chemistry, processing and treatment methods, and biocompatibility. Concurrently scheduled with course CM180. Letter grading.

282. Exploration of Advanced Topics in Materials Science and Engineering. (2) Lecture, one hour; discussion, one hour; outside study, four hours. Researchers from leading research institutions around world deliver lectures on advanced research topics in materials science and engineering. Student groups present summary previews of topics prior to lecture. Class discussions follow each presentation. May be repeated for credit. S/U grading.

296. Seminar: Advanced Topics in Materials Science and Engineering. (2) Seminar, two hours; outside study, four hours. Advanced study and analysis of current topics in materials science and engineering. Discussion of current research and literature in research specialty of faculty members teaching course. May be repeated for credit. S/U grading.

298. Seminar: Engineering. (2 to 4) Seminar, to be arranged. Limited to graduate materials science and engineering students. Seminars may be organized in

advanced technical fields. If appropriate, field trips may be arranged. May be repeated with topic change. Letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

596. Directed Individual or Tutorial Studies. (2 to 8) Tutorial, to be arranged. Limited to graduate materials science and engineering students. Petition forms to request enrollment may be obtained from assistant dean, Graduate Studies. Supervised investigation of advanced technical problems. S/U grading.

597A. Preparation for M.S. Comprehensive Examination. (2 to 12) Tutorial, to be arranged. Limited to graduate materials science and engineering students. Reading and preparation for M.S. comprehensive examination. S/U grading.

597B. Preparation for Ph.D. Preliminary Examinations. (2 to 16) Tutorial, to be arranged. Limited to graduate materials science and engineering students. S/U grading.

597C. Preparation for Ph.D. Oral Qualifying Examination. (2 to 16) Tutorial, to be arranged. Limited to graduate materials science and engineering students. Preparation for oral qualifying examination, including preliminary research on dissertation. S/U grading.

598. Research for and Preparation of M.S. Thesis. (2 to 12) Tutorial, to be arranged. Limited to graduate materials science and engineering students. Supervised independent research for M.S. candidates, including thesis prospectus. S/U grading.

599. Research for and Preparation of Ph.D. Dissertation. (2 to 16) Tutorial, to be arranged. Limited to graduate materials science and engineering students. Usually taken after students have been advanced to candidacy. S/U grading.

MATHEMATICS

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Christopher R. Anderson, Ph.D., *Director, Program in Computing*
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Paul Balmer, Ph.D.
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 Dimitri Y. Shlyakhtenko, Ph.D.
 Benjamin Sudakov, Ph.D. (*David Saxon Presidential Professor of Mathematics*)
 Terence C. Tao, Ph.D. (*James and Carol Collins Professor in College of Letters and Science*)
 Christoph M. Thiele, Ph.D.
 V.S. Varadarajan, Ph.D.
 Luminita A. Vese, Ph.D.
 William R. Zame, Ph.D.

Professors Emeriti

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 Kirby A. Baker, Ph.D.
 Robert J. Blattner, Ph.D.
 David G. Cantor, Ph.D.
 Lennart Carleson, Ph.D.
 Tony F. Chan, Ph.D.
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 Hector O. Fattorini, Ph.D.
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 Roberto H. Schonmann, Ph.D.
 Robert Steinberg, Ph.D.
 Masamichi Takesaki, Ph.D.
 James H. White, Ph.D.
 N. Donald Ylvisaker, Ph.D.

Associate Professors

Matthias J. Aschenbrenner, Ph.D.
 Marek Biskup, Ph.D.
 Rodolfo De Sapio, Ph.D.
 Mikhail Khitrik, Ph.D.
 Inwon C. Kim, Ph.D.
 Marcus A. Kracht, Ph.D.
 Gang Liu, Ph.D.
 Ciprian Manolescu, Ph.D.
 Geoffrey Mess, Ph.D.

Assistant Professors

Sebastien Roch, Ph.D.
 Joseph M. Teran, Ph.D.
 Monica Visan, Ph.D.

Lecturers

Heather Calahan, M.A.
 Susie Hakansson, Ph.D.

Adjunct Assistant Professors

Iffikhar Burhanuddin, Ph.D.
 Rizwanur R. Khan, Ph.D.
 Loong F. Kong, M.S.
 Olga V. Radko, Ph.D.
 Brendan P. Sheehan, Ph.D.

Scope and Objectives

Gauss has called mathematics the “Queen of the Sciences.” It has provided powerful intellectual tools that have made possible tremendous advances in modern science and technology. The Department of Mathematics provides courses of study that introduce students to the fundamentals of mathematics and allow them to master the most important parts of the subject, both pure and applied. It leads doctoral students to the frontiers of mathematical research, where they can begin to push back those frontiers.

Undergraduate Study

Admission

Students entering UCLA directly from high school who declare one of the five mathematics majors offered by the department at the time they apply for admission are automatically admitted to that major.

UCLA students who wish to enter one of the mathematics majors must have a minimum grade of C– in each preparation for the major course completed and a combined grade-point average of at least 2.0 in those courses. Grades in any completed major courses must also average at least 2.0. Students with 60 or more units of credit must have completed at least 12 units of calculus to enter any of the mathematics majors.

Transfer students must have a minimum grade of C in the equivalent of each preparation for the major course completed. Those transferring with 60 or more quarter units of credit must have completed at least 12 quarter units of calculus to enter any of the Mathematics Department majors.

Preliminary Examination in Mathematics

If students wish to enroll in Mathematics 1, 3A, or 31A, they must pass the Mathematics Diagnostic Test.

The examination may be taken at any one of several times, including all sessions of the summer Orientation Program. It is also given several times during the academic year. For specific dates and test locations, refer to the *Schedule of Classes* or the departmental website at <http://www.math.ucla.edu/ugrad/diagnostic.shtml>, or contact the Mathematics Student Services Office, 6356 Math Sciences.

Advanced Placement in Calculus

Students who have taken the Advanced Placement (AP) Calculus AB Test and obtained a score of 5 receive 4 units of credit and Mathe-

matics 31A equivalency; those with a score of 4 receive 4 units of calculus and analytic geometry credit. They may petition for 31A equivalency, or they may take course 31A at UCLA, although they must still satisfy the course requisites (Mathematics Diagnostic Test). Students who take the BC Test and obtain a score of 5 receive 8 units of credit and Mathematics 31A, 31B equivalency; those with a score of 4 receive 4 units of credit and Mathematics 31A equivalency. They may petition for 31A, 31B equivalency, or they may take courses 31A, 31B at UCLA, although they must still satisfy the course requisites (Mathematics Diagnostic Test). Students receiving a score of 4 or lower on the AB or 3 or lower on the BC examination should consult the undergraduate mathematics counselor prior to enrolling in a calculus course at UCLA.

Credit Limitations

Credit is given for at most one course in each of the following groups: (1) 3A, 31A; (2) 3B, 31B, 31E; (3) 110A, 117.

Courses from only one of the following statistics sequences may be applied toward any mathematics major: (1) Statistics 100A (or Mathematics 170A), 100B, 100C or (2) Statistics 110A, 110B.

Mathematics 2 and Statistics 10 are not open for credit to students with credit for any course from Mathematics 110A through 199.

Mathematics 132 is not open for credit to students with credit for Physics 132.

Mathematics 151A is not open for credit to students with credit for Electrical Engineering 103.

Mathematics 170A and Statistics 100A are not open for credit to students with credit for Electrical Engineering 131A.

For lower division mathematics courses, students may not take or repeat a course for credit if it is a requisite for a more advanced lower division course for which they already have credit. This applies in particular to the repetition of courses (e.g., if students wish to repeat Mathematics 31B, they must do so before completing course 32B; if students wish to repeat Mathematics 3B or 31B or 32A, they must do so before completing course 33A).

For upper division mathematics courses, students may not take or repeat a lower sequence course for credit if it is part of a sequence for which they already have credit. This applies in particular to the repetition of courses (e.g., if students wish to repeat Mathematics 131A, they must do so before completing course 131B or 131BH).

Students may not receive credit for both a course and the honors version of that course (e.g., they may not receive credit for both Mathematics 131A and 131AH).

Mathematics Upper Division Courses

Mathematics 115A, 131A, 132, 142, 151A, and 164 are offered each term. The remaining upper division courses are usually offered once or

twice each year. The tentative class schedule for the forthcoming academic year is posted in the Student Services Office in February.

Program in Computing Courses

Program in Computing 1 is designed for students who wish a broad, general introduction to the topic of computers and computation, but who have no prior experience in computing.

Courses 10A, 10B, and 10C provide an extensive introduction to programming, using the C++ language. Courses 15, 20A, 20B, 20C, 30, 40A, 40B, and 60 are of interest to Letters and Science majors who are completing a specialization in Computing or who are planning to take upper division coursework in computer science. These students should seek the advice of their major department.

Undergraduate Majors

The department offers five majors: Mathematics, Applied Mathematics, Mathematics of Computation, Mathematics/Applied Science, and Mathematics for Teaching. The department also participates in the Mathematics/Economics Interdepartmental Program, which offers a Mathematics/Economics major, and in the Mathematics/Atmospheric and Oceanic Sciences Interdepartmental Program, which offers a Mathematics/Atmospheric and Oceanic Sciences major.

The Mathematics major is designed for students whose basic interest is mathematics; the Applied Mathematics major for those interested in the classical relationship between mathematics, the physical sciences, and engineering; the Mathematics of Computation major for individuals interested in the mathematical theory and the applications of computing; the Mathematics/Applied Science major for those with substantial interest in the applications of mathematics to a particular outside field of interest; and the Mathematics for Teaching major for students planning to teach mathematics at the high school level. As part of the Mathematics/Applied Science major, the department offers programs for students interested in the fields of actuarial science, mathematics/history of science, and medical and life sciences.

Each course taken to fulfill any of the requirements for any of the mathematics majors must be taken for a letter grade.

Mathematics B.S.

Preparation for the Major

Required: Mathematics 31A, 31B, 32A, 32B, 33A, 33B, Physics 1A, Program in Computing 10A, and two courses from Chemistry and Biochemistry 20A, 20B, Economics 11, Life Sciences 1, Philosophy 31, 32, Physics 1B, 1C, 6B, 6C. Each course must be passed with a minimum grade of C–, and students must have a minimum overall grade-point average of 2.0 for the courses.

Transfer Students

Transfer applicants to the Mathematics major with 90 or more units must complete as many of the following introductory courses as possi-

ble prior to admission to UCLA: two years of calculus for majors, one calculus-based physics (mechanics) course, one C++ programming course, and two courses from general chemistry for majors, economics, symbolic logic, and calculus-based physics.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Mathematics 110A, 110B, 115A, 120A, 131A, 131B, 132, and at least five elective courses from 106 through 199 and Statistics 100A through 102C. The 12 courses must be passed with a minimum overall grade-point average of 2.0.

Applied Mathematics B.S.

Preparation for the Major

Required: Mathematics 31A, 31B, 32A, 32B, 33A, 33B, Physics 1A, 1B, Program in Computing 10A, and one course from Chemistry and Biochemistry 20A, 20B, Physics 1C. Each course must be passed with a minimum grade of C–, and students must have a minimum overall grade-point average of 2.0 for the courses.

Transfer Students

Transfer applicants to the Applied Mathematics major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: two years of calculus for majors, two calculus-based physics courses, one C++ programming course, and one course from general chemistry for majors or calculus-based physics.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Mathematics 115A, 131A, either 131B or 132, 142; two two-term sequences from two of the following categories: *numerical analysis*—courses 151A and 151B, *probability and statistics*—courses 170A and 170B, or Statistics 100A and 100B, or 110A and 110B, *differential equations*—courses 134 and 135; four courses from 106 through 199 and Statistics 100A through 102C (appropriate courses from other departments may be substituted for some of the additional courses provided departmental consent is given before such courses are taken). The 12 courses must be passed with a minimum overall grade-point average of 2.0.

Mathematics of Computation B.S.

Preparation for the Major

Required: Mathematics 31A, 31B, 32A, 32B, 33A, 33B, 61, Physics 1A, 1B, Program in Computing 10A, 10B, 10C, and one course from Chemistry and Biochemistry 20A, 20B, Physics 1C. Each course must be passed with

a minimum grade of C–, and students must have a minimum overall grade-point average of 2.0 for the courses.

Transfer Students

Transfer applicants to the Mathematics of Computation major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: two years of calculus for majors, one discrete structures course, two calculus-based physics courses, three programming courses, and one course from general chemistry for majors or calculus-based physics.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Eleven Mathematics Department courses, including Mathematics 115A, 131A, 131B or 132, 151A, 151B, and six courses from 106 through 199 and Statistics 100A through 101C; three upper division computer science courses (12 units). The 14 courses must be passed with a minimum overall grade-point average of 2.0.

Mathematics/Applied Science B.S.

The Mathematics/Applied Science major is designed for students with a substantial interest in mathematics and its applications to a particular field. It is an individual major in that students, in consultation with a faculty adviser, design their own program. They may also select one of the established programs: actuarial plan, mathematics/history of science plan, or medical and life sciences plan. In the past, Mathematics/Applied Science majors have combined the study of mathematics with fields such as atmospheric and oceanic sciences, biochemistry, biology, chemistry, economics, geography, physics, psychology, and statistics.

Students interested in designing an individual program should meet with the undergraduate adviser, 6356 Math Sciences, during their sophomore year. A proposed program is drawn up, then forwarded to the mathematics/applied science curriculum committee for approval. All programs must include the following preparation for the major and major courses.

Preparation for the Major

Required: Mathematics 31A, 31B, 32A, 32B, 33A, 33B, Program in Computing 10A. Each course must be passed with a minimum grade of C–, and students must have a minimum overall grade-point average of 2.0 for the courses. Additional preparation, varying with the individual program, may be required.

Transfer Students

Transfer applicants to the Mathematics/Applied Science major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: two years of calculus for majors and one

C++ programming course. Additional courses are required for each concentration plan.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Fourteen courses, seven in the Mathematics Department selected from Mathematics 106 through 199 and seven upper division courses in a related field selected from one or two other departments. The seven Mathematics Department courses must be passed with an overall grade-point average of 2.0, as must the seven courses outside mathematics.

At least five of the courses from the related discipline must be taken after the program has been approved. Students are not admitted to the major if they have 135 or more units by the end of the term in which they plan to enter the program.

Actuarial Plan

Preparation for the Major

Required: Mathematics 31A, 31B, 32A, 32B, 33A, 33B, Economics 1, 2, 11, Program in Computing 10A. Each course must be taken for a letter grade. The economics preparation for the major courses (Mathematics 31A, 31B, Economics 1, 2, and 11) are calculated separately from the mathematics preparation for the major courses (Mathematics 32A, 32B, 33A, 33B, and Program in Computing 10A). The economics preparation courses must be completed with a minimum overall 2.5 grade-point average and a C or better in each course. The mathematics preparation courses must be completed with a minimum overall 2.0 grade-point average.

Repetition of more than one economics preparation course or of any economics preparation course more than once results in automatic dismissal from the major.

The Major

Required: Eight mathematics courses, including Mathematics 115A, 131A, 170A, 170B, 172A, 172B, 172C, 174; three outside courses, including Statistics 100B, 100C, and one course from Economics 101 through 199B. Each course must be taken for a letter grade. Transfer credit is subject to department approval; consult an undergraduate counselor before enrolling in any courses for the major.

To graduate, the eight Mathematics Department courses must be passed with an overall grade-point average of 2.0, as must the three courses from the Economics and Statistics Departments.

Mathematics/History of Science Plan

Preparation for the Major

Required: Mathematics 31A, 31B, 32A, 32B, 33A, 33B, Program in Computing 10A, and three courses from History 2B, 2D, 3A through 3D.

The Major

Required: Eight mathematics courses, including Mathematics 106, 115A, 131A, 134, 170A, and three courses from 110A through 199; six outside courses to be selected from History 179A through 180C, Philosophy 124, Physiological Science M168, and any upper division Honors Collegium course with history of science/medicine content.

Medical and Life Sciences Plan

Preparation for the Major

Required: Mathematics 31A, 31B, 32A, 32B, 33A, 33B, Chemistry and Biochemistry 20A, 20B, 20L, 30A, 30AL, Life Sciences 1, 2, 3, 4, Physics 1A, 1B, Program in Computing 10A.

The Major

Required: Seven mathematics courses, including Mathematics 115A, 134, 151A, 170A, 170B, and two courses from 110A through 199 and Statistics 100B through 101C; six outside courses, including Neuroscience M101A, M101B, and M101C, and three courses from Biomathematics 110, 160, Biostatistics 100A, Chemistry and Biochemistry CM160A, Computer Science CM186B, Ecology and Evolutionary Biology C119, 133, 135, Physiological Science 100, 135, and any additional upper division course from these fields with consent of the administering department and the Mathematics Department.

Mathematics for Teaching B.S.

The Mathematics for Teaching major is designed primarily for students planning to teach mathematics at the high school level. It provides exposure to a broad range of mathematical topics, especially those appropriate for the prospective teacher. Students planning to pursue graduate studies in mathematics or related fields are encouraged to enter the Mathematics, Applied Mathematics, or Mathematics of Computation major.

Preparation for the Major

Required: Mathematics 31A, 31B, 32A, 32B, 33A, 33B, 61, Physics 1A or 6A, Program in Computing 10A, and two courses from Chemistry and Biochemistry 20A, 20B, Physics 1B, 1C, 6B, 6C, Program in Computing 10B through 97. Each course must be passed with a minimum grade of C-, and students must have a minimum overall grade-point average of 2.0 for the courses.

Transfer Students

Transfer applicants to the Mathematics for Teaching major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: two years of calculus for majors, one discrete structures course, one C++ programming course, and three courses from calculus-based physics, general chemistry for majors, and computing.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

[_tr.htm](http://www.admissions.ucla.edu/prospect/adm_tr.htm) for up-to-date information regarding transfer selection for admission.

The Major

Required: Mathematics 105A, 105B, 105C, 106, 110A or 117, 115A, 120A or 123, 131A, 170A or Statistics 100A, Statistics 100B, one course from Mathematics 110B through 191H or Statistics 100C, one course from Mathematics 131B through 136, one course from 142 through 167.

Honors

Honors Courses

The department offers a lower division honors sequence in calculus and upper division honors sequences in algebra and analysis. The sequences are intended for students (not necessarily mathematics majors) who desire a broad, comprehensive introduction to these topics.

Honors Program

Students majoring in Mathematics, Applied Mathematics, and Mathematics of Computation who wish to graduate with departmental honors should apply for admission to the honors program in the Student Services Office. They may apply any time after completing four courses from the calculus sequence or from upper division mathematics courses with an overall grade-point average of 3.6 or better. The program entails taking a specified sequence of courses as part of the major requirements, completing an approved seminar offered by the Mathematics Department or submitting an original research project, and earning an overall GPA of at least 3.6 in approved upper division and graduate mathematics courses.

Students completing the program are awarded honors at graduation; if they demonstrate exceptional achievement (i.e., at least a 3.8 GPA in upper division mathematics courses taken for the major), they are awarded highest honors. Consult the department for further information.

Computing Specialization

Majors in Mathematics, Applied Mathematics, Mathematics/Applied Science, or Mathematics for Teaching may select a specialization in Computing by (1) satisfying all the requirements for a bachelor's degree in the specified major and (2) completing Mathematics 61 or 180, Program in Computing 10A, 10B, two courses from 10C, 15, 20A, 20B, 30, 40A, 60, and at least two courses from Mathematics 149 through 159, with a minimum grade of C- in each course and a combined grade-point average of at least 2.0. Students must petition for admission to this program and are advised to do so after they complete Program in Computing 10B (petitions should be filed in the Student Services Office). Students graduate with a bachelor's degree in their major and a specialization in Computing.

Subject Matter Preparation Program for Single Subject Credential in Mathematics

Students interested in obtaining a single subject secondary school credential in mathematics should consult with a departmental counselor regarding the requirements for a waiver from the Mathematics California Subject Examination for Teachers (CSET), which is required by the California Commission on Teacher Credentialing. Students should meet with a departmental counselor as early in their undergraduate careers as possible because the program does require additional courses beyond the major requirements. For additional information on teaching credential requirements, consult the Department of Education at (310) 825-8328.

Mathematics Minor

The Mathematics minor is designed to provide students with the opportunity to widen their background and general comprehension of the role of mathematics in various disciplines.

To enter the minor, students must have an overall grade-point average of 2.0 or better and meet with the undergraduate mathematics adviser in the Student Services Office, 6356 Math Sciences.

Required Lower Division Courses (12 units): Mathematics 32A, 33A, 33B.

Required Upper Division Courses (20 units): At least five courses (20 units) selected from Mathematics 106 through 199.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Mathematics offers the Masters of Arts in Teaching (M.A.T.) degree and Master of Arts (M.A.), Candidate in Philosophy (C.Phil.), and Doctor of Philosophy (Ph.D.) degrees in Mathematics.

Mathematics

Lower Division Courses

1. Precalculus. (4) Lecture, three hours; discussion, one hour. Preparation: three years of high school mathematics. Requisite: successful completion of Mathematics Diagnostic Test. Function concept. Linear and polynomial functions and their graphs, appli-

cations to optimization. Inverse, exponential, and logarithmic functions. Trigonometric functions. P/NP or letter grading.

2. Finite Mathematics. (4) Lecture, three hours; discussion, one hour. Preparation: three years of high school mathematics. Finite mathematics consisting of matrices, Gauss/Jordan method, combinatorics, probability, Bayes theorem, and Markov chains. P/NP or letter grading.

3A. Calculus for Life Sciences Students. (4) Lecture, three hours; discussion, one hour. Preparation: three and one-half years of high school mathematics (including trigonometry). Requisite: successful completion of Mathematics Diagnostic Test (score of 36 or better) or course 1 with a grade of C– or better. Not open for credit to students with credit in another calculus sequence. Techniques and applications of differential calculus. P/NP or letter grading.

3B. Calculus for Life Sciences Students. (4) Lecture, three hours; discussion, one hour. Requisite: course 3A with a grade of C– or better. Techniques and applications of integral calculus, introduction to differential equations and multivariable differential calculus. P/NP or letter grading.

3C. Probability for Life Sciences Students. (4) Lecture, three hours; discussion, one hour. Requisite: course 3B with grade of C– or better. Elementary probability, probability distributions, random variables, and limit theorems. P/NP or letter grading.

31A. Differential and Integral Calculus. (4) Lecture, three hours; discussion, one hour. Preparation: at least three and one-half years of high school mathematics (including some coordinate geometry and trigonometry). Requisite: successful completion of Mathematics Diagnostic Test or course 1 with a grade of C– or better. Differential calculus and applications; introduction to integration. P/NP or letter grading.

31AX. Workshop in Differential Calculus. (1) Discussion, one hour. Corequisite: course 31A. Supplementary techniques and applications for solving problems in differential calculus. Limits of investigation set by individual instructor. P/NP grading.

31B. Integration and Infinite Series. (4) Lecture, three hours; discussion, one hour. Requisite: course 31A with a grade of C– or better. Transcendental functions; methods and applications of integration; sequences and series. P/NP or letter grading.

31BH. Integration and Infinite Series (Honors). (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 31A with grade of B or better. Honors course parallel to course 31B. P/NP or letter grading.

31BX. Workshop in Integral Calculus. (1) Discussion, one hour. Corequisite: course 31B. Supplementary techniques and applications for solving problems in integral calculus. Limits of investigation set by individual instructor. P/NP grading.

31E. Calculus for Economics Students. (4) Lecture, three hours; discussion, one hour. Requisite: course 31A with a grade of C– or better. Not open for credit to students with credit for course 3B, 3C, or 31B. Calculus for applications to economics. Partial differentiation, implicit functions, exponential and logarithmic functions, extrema, optimization, constrained optimization. P/NP or letter grading.

32A. Calculus of Several Variables. (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 31A with grade of C– or better. Introduction to differential calculus of several variables, vector field theory. P/NP or letter grading.

32AH-32BH. Calculus of Several Variables (Honors). (4-4) Lecture, three hours; discussion, one hour. Enforced requisite for course 32AH: course 31A with grade of B or better; for 32BH: courses 31B and 32A, with grades of B or better. Honors sequence parallel to courses 32A, 32B. P/NP or letter grading.

32B. Calculus of Several Variables. (4) Lecture, three hours; discussion, one hour. Enforced requisites: courses 31B and 32A, with grades of C– or better. Introduction to integral calculus of several variables, line and surface integrals. P/NP or letter grading.

33A. Linear Algebra and Applications. (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 3B or 31B or 32A with grade of C– or better. Introduction to linear algebra: systems of linear equations, matrix algebra, linear independence, subspaces, bases and dimension, orthogonality, least-squares methods, determinants, eigenvalues and eigenvectors, matrix diagonalization, and symmetric matrices. P/NP or letter grading.

33AH. Linear Algebra and Applications (Honors). (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 3B or 31B or 32A with grade of B or better. Honors course parallel to course 33A. P/NP or letter grading.

33B. Differential Equations. (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 31B with grade of C– or better. Highly recommended: course 33A. First-order, linear differential equations; second-order, linear differential equations with constant coefficients; power series solutions; linear systems. P/NP or letter grading.

33BX. Workshop in Infinite Series and Differential Equations. (1) Discussion, one hour. Corequisite: course 33B. Supplementary techniques and applications for solving problems in infinite series and differential equations. Limits of investigation set by individual instructor. P/NP grading.

61. Introduction to Discrete Structures. (4) Lecture, three hours; discussion, one hour. Requisites: courses 31A, 31B, Program in Computing 10A. Not open for credit to students with credit for course 113. Discrete structures commonly used in computer science and mathematics, including sets and relations, permutations and combinations, graphs and trees, induction, Boolean algebras. P/NP or letter grading.

71SL. Classroom Practices in Elementary School Mathematics. (2) Seminar, three hours; fieldwork, three hours. Introduction for prospective mathematics teachers to field of elementary education and teaching and learning of mathematics in elementary school classrooms. Pairs of students are placed in local elementary school classrooms to observe, participate, and assist mentor teachers in instruction. Introduction to inquiry-based learning practices, national and California standards, reading and learning differences in children, and cognitive ability of elementary-age children as it relates to introduction of concepts, curricular planning, classroom management, and learning assessment. P/NP grading.

72SL. Classroom Practices in Middle School Mathematics. (2) Seminar, 90 minutes; fieldwork, two and one-half hours. Requisites: courses 31A and 31B, with grades of C– or better. Introduction for prospective mathematics teachers to field of secondary education and teaching and learning of mathematics in middle school classrooms. Pairs of students are placed in local middle school classrooms to observe, participate, and assist mentor teachers in instruction. Discussion of learning in middle school culture, cognitive development of students at this level, and best means to teach appropriate mathematics concepts at this level. P/NP grading.

97. Variable Topics in Mathematics. (4) Lecture, three hours; discussion, one hour. Study of selected topics in mathematics at introductory level. P/NP or letter grading.

98XA. PEERS Collaborative Learning Workshops for Life Sciences Majors. (1) Laboratory, three hours. Corequisite: associated undergraduate lecture course in mathematics for life sciences majors. Development of intuition and problem-solving skills in collaborative learning environment. May be repeated four times, but only 1 unit may be applied toward graduation. P/NP grading.

98XB. PEERS Collaborative Learning Workshops for Physical Sciences and Engineering Majors. (1) Laboratory, three hours. Corequisite: associated undergraduate lecture course in mathematics for physical sciences and engineering majors. Development of intuition and problem-solving skills in collaborative learning environment. May be repeated four times, but only 1 unit may be applied toward graduation. P/NP grading.

Upper Division Courses

General and Teacher Training

100. Problem Solving. (4) (Formerly numbered 192.) Lecture, three hours. Requisite: course 31A with grade of C- or better. Problem-solving techniques and mathematical topics useful as preparation for Putnam Examination and similar competitions. Continued fractions, inequalities, modular arithmetic, closed form evaluation of sums and products, problems in geometry, rational functions and polynomials, other nonroutine problems. Participants expected to take Putnam Examination. P/NP grading.

103A-103B-103C. Observation and Participation: Mathematics Instruction. (2-2-2) (Formerly numbered 330.) Seminar, one hour; fieldwork (classroom observation and participation), two hours. Requisites: courses 31A, 31B, 32A, 33A, 33B. Course 103A is enforced requisite to 103B, which is enforced requisite to 103C. Observation, participation, or tutoring in mathematics classes at middle school and secondary levels. May be repeated for credit. P/NP (undergraduates) or S/U (graduates) grading.

105A-105B. Mathematics and Pedagogy for Teaching Mathematics. (4-4) Lecture, four hours. Requisites: courses 110A (or 117), 115A, 120A (or 123), 131A. Course 105A is requisite to 105B. Designed for senior Mathematics Department majors. Topics in geometry, algebra, number theory, discrete mathematics, and functions presented from problem-solving and student participation point of view, with emphasis on historical context and appropriate role of proof. P/NP or letter grading.

105C. Mathematics and Pedagogy for Teaching Mathematics. (4) Lecture, four hours. Requisites: courses 105A, 105B, 110A (or 117), 115A, 120A (or 123), 131A. Limited to Mathematics Department majors. Mathematical topics that are relevant to secondary curriculum from advanced perspective. Mathematical knowledge for teaching. Pedagogical methods in mathematics teaching. Introduction to professional issues in mathematics education and teaching. Observing and assisting in local secondary schools. Letter grading.

106. History of Mathematics. (4) Lecture, three hours; discussion, one hour. Requisites: courses 31A, 31B, 32A. Roots of modern mathematics in ancient Babylonia and Greece, including place value number systems and proof. Development of algebra through Middle Ages to Fermat and Abel, invention of analytic geometry and calculus. Selected topics. P/NP or letter grading.

Algebra, Number Theory, and Logic

110A-110B. Algebra. (4-4) Lecture, three hours; discussion, one hour. P/NP or letter grading. **110A.** Requisite: course 115A. Not open for credit to students with credit for course 117. Ring of integers, integral domains, fields, polynomial domains, unique factorization. **110B.** Requisite: course 110A or 117. Groups, structure of finite groups.

110AH-110BH. Algebra (Honors). (4-4) Lecture, three hours; discussion, one hour. Honors sequence parallel to courses 110A, 110B.

110C. Algebra. (4) Lecture, three hours; discussion, one hour. Requisites: courses 110A, 110B. Field extensions, Galois theory, applications to geometric constructions, and solvability by radicals.

111. Theory of Numbers. (4) Lecture, three hours; discussion, one hour. Requisites: courses 110A or 117, 115A. Divisibility, congruences, Diophantine analysis, selected topics in theory of primes, algebraic number theory, Diophantine equations.

114C. Computability Theory. (4) (Formerly numbered 114A.) Lecture, three hours; discussion, one hour. Requisite: course 110A or 131A or Philosophy 135. Effectively calculable, Turing computable, and recursive functions; Church/Turing thesis. Normal form theorem; universal functions; unsolvability and undecid-

ability results. Recursive and recursively enumerable sets; relative recursiveness, polynomial-time computability. Arithmetical hierarchy. P/NP or letter grading.

114L. Mathematical Logic. (4) (Formerly numbered 114B.) Lecture, three hours; discussion, one hour. Requisite: course 110A or 131A or Philosophy 135. Introduction to mathematical logic, aiming primarily at completeness and incompleteness theorems of Gödel. Propositional and predicate logic; syntax and semantics; formal deduction; completeness, compactness, and Lowenheim/Skolem theorems. Formal number theory: nonstandard models; Gödel incompleteness theorem. P/NP or letter grading.

M114S. Introduction to Set Theory. (4) (Formerly numbered M112.) (Same as Philosophy M134.) Lecture, three hours; discussion, one hour. Requisite: course 110A or 131A or Philosophy 135. Axiomatic set theory as framework for mathematical concepts; relations and functions, numbers, cardinality, axiom of choice, transfinite numbers. P/NP or letter grading.

115A-115B. Linear Algebra. (5-4) P/NP or letter grading. **115A.** Lecture, three hours; discussion, two hours. Requisite: course 33A. Techniques of proof, abstract vector spaces, linear transformations, and matrices; determinants; inner product spaces; eigenvalue theory. **115B.** Lecture, three hours; discussion, one hour. Requisite: course 115A. Linear transformations, conjugate spaces, duality; theory of a single linear transformation, Jordan normal form; bilinear forms, quadratic forms; Euclidean and unitary spaces, symmetric skew and orthogonal linear transformations, polar decomposition.

115AH. Linear Algebra (Honors). (5) Lecture, three hours; discussion, two hours. Requisite: course 33A with grade of B or better. Honors course parallel to course 115A. P/NP or letter grading.

115AX-115BX. Workshops in Linear Algebra. (1-1) Discussion, one hour. Corequisite for course 115AX: course 115A; for course 115BX: course 115B. Supplementary techniques and applications for solving problems in linear algebra. Limits of investigation set by individual instructor. P/NP grading.

115HX. Workshop in Linear Algebra (Honors). (1) Discussion, one hour. Corequisite: course 115AH. Honors course parallel to course 115AX. P/NP grading.

116. Mathematical Cryptology. (4) Lecture, three hours; discussion, one hour. Requisite: course 115A. Not open for credit to students with credit for Program in Computing 130. Introduction to mathematical cryptology using methods of number theory, algebra, probability. Topics include symmetric and public-key cryptosystems, one-way functions, signatures, key exchange, groups, primes, pseudoprimes, primality tests, quadratic reciprocity, factoring, rho method, RSA, discrete logs. P/NP or letter grading.

117. Algebra for Applications. (4) Lecture, three hours; discussion, one hour. Requisite: course 115A. Not open for credit to students with credit for course 110A. Integers, congruences; fields, applications of finite fields; polynomials; permutations, introduction to groups.

Geometry and Topology

120A-120B. Differential Geometry. (4-4) Lecture, three hours; discussion, one hour. Requisites: courses 32B, 33B, 115A, 131A. Curves in 3-space, Frenet formulas, surfaces in 3-space, normal curvature, Gaussian curvature, congruence of curves and surfaces, intrinsic geometry of surfaces, isometries, geodesics, Gauss/Bonnet theorem. P/NP or letter grading.

121. Introduction to Topology. (4) Requisite: course 131A. Metric and topological spaces, completeness, compactness, connectedness, functions, continuity, homeomorphisms, topological properties.

123. Foundations of Geometry. (4) Lecture, three hours; discussion, one hour. Requisite: course 115A. Axioms and models, Euclidean geometry, Hilbert axioms, neutral (absolute) geometry, hyperbolic geometry, Poincaré model, independence of parallel postulate.

Analysis

131A-131B. Analysis. (4-4) Lecture, three hours; discussion, one hour. P/NP or letter grading. **131A.** Requisites: courses 32B, 33B. Recommended: course 115A. Rigorous introduction to foundations of real analysis; real numbers, point set topology in Euclidean space, functions, continuity. **131B.** Requisites: courses 33B, 115A, 131A. Derivatives, Riemann integral, sequences and series of functions, power series, Fourier series.

131AH-131BH. Analysis (Honors). (4-4) Lecture, three hours; discussion, one hour. Requisites for course 131AH: courses 32B and 33B, with grades of B or better. Recommended: course 115A. Honors sequence parallel to courses 131A, 131B. P/NP or letter grading.

131AX. Analysis Techniques. (1) Lecture, one hour. Requisite: course 33B. Corequisite: course 131A. Review of elementary techniques of mathematics and their applications to topics in analysis, such as geometric and algebraic constructions, least upper bound axiom, etc. P/NP grading.

131C. Topics in Analysis. (4) Lecture, three hours; discussion, one hour. Requisites: courses 131A, 131B. Advanced topics in analysis, such as Lebesgue integral, integration on manifolds, harmonic analysis. Content varies from year to year. May be repeated for credit by petition.

132. Complex Analysis for Applications. (4) Lecture, three hours; discussion, one hour. Requisites: courses 32B, 33B. Introduction to basic formulas and calculation procedures of complex analysis of one variable relevant to applications. Topics include Cauchy/Riemann equations, Cauchy integral formula, power series expansion, contour integrals, residue calculus.

133. Introduction to Fourier Analysis. (4) Lecture, three hours; discussion, one hour. Requisites: courses 33A, 33B, 131A. Fourier series, Fourier transform in one and several variables, finite Fourier transform. Applications, in particular, to solving differential equations. Fourier inversion formula, Plancherel theorem, convergence of Fourier series, convolution. P/NP or letter grading.

134. Linear and Nonlinear Systems of Differential Equations. (4) Lecture, three hours; discussion, one hour. Requisites: courses 33B, 115A. Dynamical systems analysis of nonlinear systems of differential equations. One- and two-dimensional flows. Fixed points, limit cycles, and stability analysis. Bifurcations and normal forms. Elementary geometrical and topological results. Applications to problems in biology, chemistry, physics, and other fields. P/NP or letter grading.

135. Ordinary Differential Equations. (4) Lecture, three hours; discussion, one hour. Requisites: courses 33A, 33B. Selected topics in differential equations. Laplace transforms, existence and uniqueness theorems, Fourier series, separation of variable solutions to partial differential equations, Sturm/Liouville theory, calculus of variations, two-point boundary value problems, Green's functions. P/NP or letter grading.

136. Partial Differential Equations. (4) Lecture, three hours; discussion, one hour. Requisites: courses 33A, 33B. Linear partial differential equations, boundary and initial value problems; wave equation, heat equation, and Laplace equation; separation of variables, eigenfunction expansions; selected topics, as method of characteristics for nonlinear equations.

Applied Mathematics

142. Mathematical Modeling. (4) Lecture, three hours; discussion, one hour. Requisites: courses 32B, 33B. Introduction to fundamental principles and spirit of applied mathematics. Emphasis on manner in which mathematical models are constructed for physical problems. Illustrations from many fields of endeavor, such as physical sciences, biology, economics, and traffic dynamics.

143. Analytic Mechanics. (4) Lecture, three hours; discussion, one hour. Requisites: courses 32B, 33B. Foundations of Newtonian mechanics, kinematics

and dynamics of a rigid body, variational principles and Lagrange equations; calculus of variations, variable mass; related topics in applied mathematics.

146. Methods of Applied Mathematics. (4) Lecture, three hours; discussion, one hour. Requisites: courses 32B, 33B. Integral equations, Green's function, and calculus of variations. Selected applications from control theory, optics, dynamical systems, and other engineering problems.

149. Mathematics of Computer Graphics. (4) Lecture, three hours; discussion, one hour. Requisites: course 115A, and Program in Computing 10A or equivalent knowledge of programming in either Pascal or C language. Study of homogeneous coordinates, projective transformations, interpolating and approximating curves, representation of surfaces, and other mathematical topics useful for computer graphics.

151A-151B. Applied Numerical Methods. (4-4) Lecture, three hours; discussion, one hour. Introduction to numerical methods with emphasis on algorithms, analysis of algorithms, and computer implementation issues. Letter grading. **151A.** Requisites: courses 32B, 33B, 115A, Program in Computing 10A. Solution of nonlinear equations. Numerical differentiation, integration, and interpolation. Direct methods for solving linear systems. **151B.** Requisite: course 151A. Numerical solution of differential equations. Approximation theory, iterative solutions of linear equations, solution of nonlinear systems, two-point boundary value problems, optimization.

153. Numerical Methods for Partial Differential Equations. (4) Lecture, three hours; discussion, one hour. Requisites: courses 151A, 151B. Introduction to first- and second-order linear partial differential equations. Finite difference and finite element solution of elliptic, hyperbolic, and parabolic equations. Method of lines and Rayleigh/Ritz procedures. Concepts of stability and accuracy. Letter grading.

155. Mathematical Imaging. (4) Lecture, three hours; discussion, one hour. Requisites: courses 32B, 33B, 115A, Program in Computing 10A. Imaging geometry. Image transforms. Enhancement, restoration, and segmentation. Descriptors. Morphology. P/NP or letter grading.

157. Software Techniques for Scientific Computation. (4) Lecture, three hours; discussion, one hour. Requisites: course 151A, Program in Computing 10C. Software structures, concepts, and conventions that support object-oriented programming. Identification of class structure, problem partitioning, and abstraction. Design and implementation of computer applications requiring scientific computation, visualization, and GUI components. Interlanguage interfacing. P/NP or letter grading.

157X. Workshop in Software Techniques for Scientific Computation. (1) Discussion, one hour. Corequisite: course 157. Supplementary techniques and applications for solving problems in scientific computing. Limits of investigation set by individual instructor. P/NP grading.

164. Optimization. (4) Lecture, three hours; discussion, one hour. Requisite: course 115A. Not open for credit to students with credit for Electrical Engineering 136. Fundamentals of optimization. Linear programming: basic solutions, simplex method, duality theory. Unconstrained optimization, Newton method for minimization. Nonlinear programming, optimality conditions for constrained problems. Additional topics from linear and nonlinear programming. P/NP or letter grading.

167. Mathematical Game Theory. (4) Lecture, three hours; discussion, one hour. Requisite: course 115A. Quantitative modeling of strategic interaction. Topics include extensive and normal form games, background probability, lotteries, mixed strategies, pure and mixed Nash equilibria and refinements, bargaining; emphasis on economic examples. Optional topics include repeated games and evolutionary game theory. P/NP or letter grading.

Probability

170A. Probability Theory. (4) Lecture, three hours; discussion, one hour. Requisite: course 32B. Not open to students with credit for Electrical Engineering 131A or Statistics 100A. Probability distributions, random variables and vectors, expectation. P/NP or letter grading.

170B. Probability Theory. (4) Lecture, three hours; discussion, one hour. Requisite: course 170A or Statistics 100A. Convergence in distribution, normal approximation, laws of large numbers, Poisson processes, random walks. P/NP or letter grading.

171. Stochastic Processes. (4) Lecture, three hours; discussion, one hour. Requisites: courses 33A, 170A (or Statistics 100A or 110A). Discrete Markov chains, continuous-time Markov chains, renewal theory. P/NP or letter grading.

172A. Introduction to Financial Mathematics. (4) Lecture, four hours. Requisites: courses 32B, 33B. Designed to provide understanding of fundamental concepts of financial mathematics and how those concepts are applied in calculating present and accumulated values from various streams of cash flows as basis for future use in reserving, valuation, pricing asset/liability management, investment income, capital budgeting, and valuing contingent cash flows. Letter grading.

172B. Actuarial Models I. (4) Lecture, four hours. Requisites: courses 170A and 170B (or Statistics 100A and 100B), 172A. Designed to provide understanding of theoretical basis of certain actuarial models and application of those models to insurance, pensions, and other financial risks. Letter grading.

172C. Actuarial Models II. (4) Lecture, four hours. Enforced requisite: course 172B. Theoretical basis of certain actuarial models and application to insurance, pensions, and other financial risks. Letter grading.

173A. Casualty Loss Models I. (4) Lecture, four hours. Enforced requisites: courses 170A and 170B (or Statistics 100A and 100B), 172A. Designed to provide understanding of various casualty loss models. Coverage of steps involved in modeling process and how to carry out these steps in solving business problems. Letter grading.

173B. Casualty Loss Models II. (4) Lecture, four hours. Enforced requisite: course 173A. Construction of parametric loss models and introduction to credibility theory that provides tools to utilize collected information, such as past loss information, to predict future outcomes. Use of simulation to model future events. Letter grading.

174. Mathematics of Finance. (4) (Formerly numbered 181.) Lecture, three hours; discussion, one hour. Enforced requisites: courses 33A, 170A (or Statistics 110A), Economics 11. Not open for credit to students with credit for Statistics C183. Modeling, mathematics, and computation for financial securities. Price of risk. Random walk models for stocks and interest rates. No-arbitrage theory for pricing derivative securities; Black/Scholes theory. European and American options. Monte Carlo, trees, finite difference methods. P/NP or letter grading.

Discrete Mathematics

180. Combinatorics. (4) (Formerly numbered 113.) Lecture, three hours; discussion, one hour. Enforced requisites: courses 32B, 33B. Permutations and combinations, counting principles, recurrence relations and generating functions, combinatorial designs, graphs and trees, with applications including games of complete information. Combinatorial existence theorems, Ramsey theorem. P/NP or letter grading.

182. Algorithms. (4) Lecture, three hours; discussion, one hour. Requisite: course 3C or 32A. Graphs, greedy algorithms, divide and conquer algorithms, dynamic programming, network flow. Emphasis on designing efficient algorithms useful in diverse areas such as bioinformatics and allocation of resources. P/NP or letter grading.

184. Topics in Combinatorics. (4) Lecture, three hours; discussion, one hour. Requisites: courses 61 (or 180), 115A. Introduction to combinatorics, including several independent topics selected to illustrate various techniques to obtain combinatorial results. Gems of modern combinatorics to be showcased. May be repeated for credit. P/NP or letter grading.

Special Studies

190A-190O. Seminars: Current Literature. (1 each) Seminar, one hour. Designed for undergraduate students. Readings and presentations of papers in mathematical literature under supervision of staff member. One-hour presentation required. P/NP grading:

190A. History and Development of Mathematics.

190B. Number Theory.

190C. Algebra.

190D. Logic.

190E. Geometry.

190F. Topology.

190G. Analysis.

190H. Differential Equations.

190I. Functional Analysis.

190J. Applied Mathematics.

190K. Probability.

190L. Dynamical Systems.

190M. Mathematics.

190N. Combinatorics.

190O. Cryptography.

191. Variable Topics Research Seminars: Mathematics. (4) Seminar, three hours. Variable topics research course in mathematics that covers material not covered in regular mathematics upper division curriculum. Reading, discussion, and development of culminating project. May be repeated for credit with topic and/or instructor change. P/NP or letter grading.

191H. Honors Research Seminars: Mathematics. (4) Seminar, three hours. Participating seminar on advanced topics in mathematics. Content varies from year to year. May be repeated for credit by petition. P/NP or letter grading.

195. Community Internships in Mathematics Education. (4) Tutorial, to be arranged. Limited to juniors/seniors. Internship to be supervised by Center for Community Learning and Mathematics Department. Students meet on regular basis with instructor, provide periodic reports of their experience, have assigned readings on mathematics education, and complete final paper. May not be repeated and may not be applied toward major requirements. Individual contract with supervising faculty member required. P/NP grading.

197. Individual Studies in Mathematics. (2 to 4) Tutorial, three hours per week per unit. Limited to juniors/seniors. At discretion of chair and subject to availability of staff, individual intensive study of topics suitable for undergraduate course credit but not specifically offered as separate courses. Scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for maximum of 12 units, but no more than one 197 or 199 course may be applied toward upper division courses required for majors offered by Mathematics Department. Individual contract required. P/NP or letter grading.

199. Directed Research or Senior Project in Mathematics. (2 or 4) Tutorial, three hours per week per unit. Limited to juniors/seniors. Supervised individual research under guidance of faculty mentor. Scheduled meetings to be arranged between faculty member and student. Culminating report required. May be repeated for maximum of 12 units, but no more than one 197 or 199 course may be applied toward upper division courses required for majors offered by Mathematics Department. Individual contract required. P/NP or letter grading.

Graduate Courses

Teacher Preparation

201A-201B-201C. Topics in Algebra and Analysis. (4-4-4) Preparation: bachelor's degree in mathematics. Designed for mathematics/education program students. Important ideas of algebra, geometry, and calculus leading effectively from elementary to modern mathematics. Approaches to number system, point sets, geometric interpretations of algebra and analysis, integration, differentiation, series and analytic functions. May not be applied toward M.A. degree requirements.

202A-202B. Mathematical Models and Applications. (4-4) Preparation: bachelor's degree in mathematics. Designed for mathematics/education program students. Development of mathematical theories describing various empirical situations. Basic characterizing postulates; development of a logical structure of theorems. Modern topics such as operations research, linear programming, game theory, learning models, models in social and life sciences. May not be applied toward M.A. degree requirements.

203. Master's Linear Algebra. (4) Lecture, four hours; discussion, one hour. Rigorous treatment of fundamental results of pure and applied linear algebra over fields. Applications to contemporary research. Preparation for linear algebra portion of UCLA Mathematics Basic Examination that is required of M.A. and Ph.D. students. S/U or letter grading.

204. Master's Analysis. (4) Lecture, four hours; discussion, one hour. Rigorous treatment of fundamental results of analysis. Applications to contemporary research. Preparation for analysis portion of UCLA Mathematics Basic Examination that is required of M.A. and Ph.D. students. S/U or letter grading.

Number Theory

205A-205B-205C. Number Theory. (4-4-4) Lecture, three hours. Requisites: courses 210A, 246A. Algebraic number theory, including ideal theory, valuations, local fields, cyclotomic fields. Introduction to class-field theory, analytic number theory, L-functions and class number formulas, and modular forms. S/U or letter grading.

206A-206B. Combinatorial Theory. (4-4) Generating functions. Probabilistic methods. Polya theorem. Enumerative graph theory. Partition theory. Number theoretical applications. Structure of graphs, matching theory, duality theorems. Packings, pavings, coverings, statistical designs, difference sets, triple systems, finite planes. Configurations, polyhedra. Ramsey theory, finite and transfinite, and applications.

207A-207B-207C. Topics in Number Theory. (4-4-4) Lecture, three hours. Adelic analysis on $GL(1)$ and $GL(2)$, especially Tate thesis and Hecke theory, automorphic representations. Special values of L-functions and p-adic L-functions, arithmetic theory of modular forms, advanced topics in analytic number theory. Arithmetic geometry, especially of modular curves. S/U or letter grading.

M208A-M208B. Topics in Applied Number Theory. (4-4) (Same as Computer Science M283A-M283B.) Lecture, three hours. Basic number theory, including congruences and prime numbers. Cryptography: public-key and discrete log cryptosystems. Attacks on cryptosystems. Primality testing and factorization methods. Elliptic curve methods. Topics from coding theory: Hamming codes, cyclic codes, Gilbert/Varshamov bounds, Shannon theorem. S/U or letter grading.

M209A. Cryptography. (4) (Same as Computer Science M282A.) Lecture, four hours; outside study, eight hours. Introduction to theory of cryptography, stressing rigorous definitions and proofs of security. Topics include notions of hardness, one-way functions, hardcore bits, pseudorandom generators, pseudorandom functions and pseudorandom permutations, semantic security, public-key and private-key encryption, secret-sharing, message authentication, digital signatures, interactive proofs, zero-knowledge proofs, collision-re-

sistant hash functions, commitment protocols, key-agreement, contract signing, and two-party secure computation with static security. Letter grading.

M209B. Cryptographic Protocols. (4) (Same as Computer Science M282B.) Lecture, four hours. Requisite: course M209A. Consideration of advanced cryptographic protocol design and analysis. Topics include noninteractive zero-knowledge proofs; zero-knowledge arguments; concurrent and non-black-box zero-knowledge; IP=PSPACE proof, stronger notions of security for public-key encryption, including chosen-ciphertext security; secure multiparty computation; dealing with dynamic adversary; nonmalleability and composability of secure protocols; software protection; threshold cryptography; identity-based cryptography; private information retrieval; protection against man-in-middle attacks; voting protocols; identification protocols; digital cash schemes; lower bounds on use of cryptographic primitives, software obfuscation. May be repeated for credit with topic change. Letter grading.

Algebra

210A-210B-210C. Algebra. (4-4-4) Requisites: courses 110A, 110B, 110C. Students with credit for courses 110B and/or 110C cannot receive M.A. degree credit for courses 210B and/or 210C. Group theory, including theorems of Sylow and Jordan/Holder/Schreier; rings and ideals, factorization theory in integral domains, modules over principal ideal rings, Galois theory of fields, multilinear algebra, structure of algebras.

211. Structure of Rings. (4) Requisite: course 210A. Radical, irreducible modules and primitive rings, rings and algebras with minimum condition.

212. Homological Algebra. (4) Requisite: course 210A. Modules over a ring, homomorphisms and tensor products of modules, functors and derived functors, homological dimension of rings and modules.

213A-213B. Theory of Groups. (4-4) Requisite: course 210A. Topics include representation theory, transfer theory, infinite Abelian groups, free products and presentations of groups, solvable and nilpotent groups, classical groups, algebraic groups.

214A-214B. Introduction to Algebraic Geometry. (4-4) Requisite: course 210A. Basic definitions and first properties of algebraic varieties in affine and projective space: irreducibility, dimension, singular and smooth points. More advanced topics, such as sheaves and their cohomology, or introduction to theory of Riemann surfaces, as time permits.

215A-215B. Commutative Algebra. (4-4) Requisite: course 210A. Topics from commutative ring theory, including techniques of localization, prime ideal structure in commutative Noetherian rings, principal ideal theorem, Dedekind rings, modules, projective modules, Serre conjecture, regular local rings.

216. Further Topics in Algebraic Geometry. (4) Requisites: courses 214A, 214B. Closer examination of areas of current research in algebraic geometry. Variable content may include algebraic surfaces, Abelian varieties, invariant theory, Hodge theory, or geometry over finite fields. May be repeated for credit by petition.

M217. Geometry and Physics. (4) (Same as Physics M236.) Lecture, three hours. Interdisciplinary course on topics at interface between physics quantum fields and superstrings and mathematics of differential and algebraic geometry. Topics include supersymmetry, Seiberg/Witten theory, conformal field theory, Calabi/Yau manifolds, mirror symmetry and duality, integrable systems. S/U grading.

218A. Discrete Mathematics: Probabilistic Methods. (4) (Formerly numbered 276.) Lecture, three hours. Linearity of expectation, second moment method, local lemma, correlation inequalities, martingales, large deviation inequalities, Janson and Talagrand inequalities, and pseudo-randomness. S/U or letter grading.

218B. Discrete Mathematics: Algebraic Methods. (4) (Formerly numbered 218.) Lecture, three hours. Basic dimension arguments, spaces of polynomials and tensor product methods, eigenvalues of graphs and their application, combinatorial Nullstellensatz and Chevalley/Waring theorem. Counterexample to Borsuk conjecture, chromatic number of unit distance graph of Euclidean space, explicit constructions of Ramsey graphs, other topics. S/U or letter grading.

218C. Topics in Discrete Mathematics. (4) Lecture, three hours. Examination of variety of methods, approaches, and techniques that were developed in last 30 years in discrete mathematics. Topics may include extremal problems for graphs and set systems, Ramsey theory, additive number theory combinatorial geometry, topological methods in combinatorics, entropy and other tools from information theory, discrete harmonic analysis and its applications to combinatorics and theoretical computer science. Topics vary from year to year. May be repeated for credit with consent of instructor. S/U or letter grading.

Logic and Foundations

220A-220B-220C. Mathematical Logic. (4-4-4) Lecture, three hours. Requisite: course M114S. Fundamental methods and results in mathematical logic, using mathematical methods to reason about existence or nonexistence of proofs and computations in many different settings. Topics include compactness theorem, saturation of models, completeness and incompleteness theorems of Gödel, Turing computability and degrees of unsolvability, recursion in Baire space, Zermelo/Fraenkel axioms, universe of constructible sets, and related equiconsistency results in set theory. S/U or letter grading.

222A-222B. Lattice Theory and Algebraic Systems. (4-4) Lecture, three hours. Requisite: course 210A. Partially ordered sets, lattices, distributivity, modularity; completeness, interaction with combinatorics, topology, and logic; algebraic systems, congruence lattices, subdirect decomposition, congruence laws, equational bases, applications to lattices.

223C. Topics in Computability Theory. (4) Lecture, three hours. Requisites: courses 220A, 220B. Degrees of unsolvability, recursively enumerable sets, undecidable theories; inductive definitions, admissible sets and ordinals; recursion in higher types; recursion and complexity. Topics vary from year to year. May be repeated for credit with consent of instructor. S/U or letter grading.

223D. Topics in Descriptive Set Theory. (4) Lecture, three hours. Requisites: courses 220A, 220B. Classical and effective results on Borel and projective sets; infinite games of perfect information and principle of determinacy; consequences of determinacy, including periodicity, structure theory of pointclasses, and partition properties. Topics vary from year to year. May be repeated for credit with consent of instructor. S/U or letter grading.

223M. Topics in Model Theory. (4) (Formerly numbered 223A.) Lecture, three hours. Requisites: courses 220A, 220B. Ultraproducts, preservation theorems, interpolation theorems, saturated models, omitting types, categoricity, two cardinal theorems, enriched languages, soft model theory, and applied model theory. Topics vary from year to year. May be repeated for credit with consent of instructor. S/U or letter grading.

223S. Topics in Set Theory. (4) (Formerly numbered 223B.) Lecture, three hours. Requisites: courses 220A, 220B, 220C. Forcing and independence results, including independence of continuum hypothesis and independence of axiom of choice; inner model theory; large cardinals; proofs of determinacy; combinatorial set theory. Topics vary from year to year. May be repeated for credit with consent of instructor. S/U or letter grading.

Geometry and Topology

225A. Differential Topology. (4) Lecture, three hours; discussion, one hour. Manifolds, tangent vectors, smooth maps, tangent bundles and vector bundles in general, vector fields and integral curves, Sard theorem on measure of critical values, embedding

theorem, transversality, degree theory, Lefschetz fixed-point theorem, Euler characteristic, Ehresmann theorem that proper submersions are locally trivial fibrations. S/U or letter grading.

225B. Differential Geometry. (4) Lecture, three hours; discussion, one hour. Lie derivatives, integrable distributions and Frobenius theorem, differential forms, integration and Stokes theorem, de Rham cohomology, including Mayer/Vietoris sequence, Poincaré duality, Thom classes, degree theory and Euler characteristic revisited from viewpoint of de Rham cohomology, Riemannian metrics, gradients, volume forms, and interpretation of classical integral theorems as aspects of Stokes theorem for differential forms. S/U or letter grading.

225C. Algebraic Topology. (4) Lecture, three hours; discussion, one hour. Basic concepts of homotopy theory, fundamental group and covering spaces, singular homology and cohomology theory, axioms of homology theory, Mayer/Vietoris sequence, calculation of homology and cohomology of standard spaces, cell complexes and cellular homology, de Rham theorem on isomorphism of de Rham differential-form cohomology and singular cohomology with real coefficients. S/U or letter grading.

226A-226B-226C. Differential Geometry. (4-4-4) Lecture, three hours. Requisite: course 225A. Manifold theory; connections, curvature, torsion, and parallelism. Riemannian manifolds; completeness, submanifolds, constant curvature. Geodesics; conjugate points, variational methods, Myers theorem, nonpositive curvature. Further topics such as pinched manifolds, integral geometry, Kahler manifolds, symmetric spaces.

227A-227B. Algebraic Topology. (4-4) Lecture, three hours. Requisite: course 225B. CW complexes, fiber bundles, homotopy theory, cohomology theory, spectral sequences.

229A-229B-229C. Lie Groups and Lie Algebras. (4-4-4) Preparation: knowledge of basic theory of topological groups and differentiable manifolds. Lie groups, Lie algebras, subgroups, subalgebras. Exponential map. Universal enveloping algebra. Campbell/Hausdorff formula. Nilpotent and solvable Lie algebras. Cohomology of Lie algebras. Theorems of Weyl, Levi-Mal'cev. Semi-simple Lie algebras. Classification of simple Lie algebras. Representations. Compact groups. Weyl character formula.

233. Partial Differential Equations on Manifolds. (4) Lecture, three hours. Requisites: courses 226A, 251A. Topics may include Laplacian operator on a Riemannian manifold, eigenvalues, Atiyah/Singer index theorem, isoperimetric inequalities, elliptic estimates, harmonic functions, function theory on manifolds, Green's function, heat equation, minimal hypersurfaces, prescribed curvature equations, harmonic maps, Yang/Mills equation, Monge/Ampere equations.

234. Topics in Differential Geometry. (4) Lecture, three hours. Requisites: courses 226A, 226B. Complex and Kahler geometry, Hodge theory, homogeneous manifolds and symmetric spaces, finiteness and convergence theorems for Riemannian manifolds, almost flat manifolds, closed geodesics, manifolds of positive scalar curvature, manifolds of constant curvature. Topics vary from year to year. May be repeated for credit by petition.

235. Topics in Manifold Theory. (4) Lecture, three hours. Requisites: courses 225A, 225B. Emphasis on low-dimensional manifolds. Structure and classification of manifolds, automorphisms of manifolds, submanifolds (e.g., knots and links). Topics vary from year to year. May be repeated for credit by petition.

236. Topics in Geometric Topology. (4) Lecture, three hours. Requisites: courses 225A, 225B. Decomposition spaces, surgery theory, group actions, dimension theory, infinite dimensional topology. Topics vary from year to year. May be repeated for credit by petition.

237. Topics in Algebraic Topology. (4) Lecture, three hours. Requisites: courses 227A, 227B. Fixed-point theory, fiber spaces and classifying spaces,

characteristic classes, generalized homology and cohomology theories. Topics vary from year to year. May be repeated for credit by petition.

238A-238B. Dynamical Systems. (4-4) Lecture, three hours. Recommended preparation: first-year analysis courses. Topics include qualitative theory of differential equations, bifurcation theory, and Hamiltonian systems; differential dynamics, including hyperbolic theory and quasiperiodic dynamics; ergodic theory; low-dimensional dynamics. S/U or letter grading.

Analysis and Differential Equations

240. Methods of Set Theory. (4) Lecture, three hours. Requisites: courses 110A, 110B, 121, 131A, 131B. Naive, axiomatic set theory, axiom of choice and its equivalents, well-orderings, transfinite induction, ordinal and cardinal arithmetic. Applications to algebra: Hamel bases, Stone representation theorem. Applications to analysis and topology: Cantor/Bendixson theorem, counterexamples in measure theory, Borel and analytic sets, Choquet theorem.

245A-245B-245C. Real Analysis. (4-4-4) Lecture, three hours. Requisites: courses 121, 131A, 131B. Basic measure theory. Measure theory on locally compact spaces. Fubini theorem. Elementary aspects of Banach and Hilbert spaces and linear operators. Function spaces. Radon/Nikodym theorem. Fourier transform and Plancherel on \mathbb{R}^n and \mathbb{T}^n .

246A-246B-246C. Complex Analysis. (4-4-4) Requisites: courses 131A, 131B. Students with credit for course 132 cannot receive M.A. degree credit for course 246A. Cauchy/Riemann equations. Cauchy theorem. Cauchy integral formula and residue calculus. Power series. Normal families. Harmonic functions. Linear fractional transformations. Conformal mappings. Analytic continuation. Examples of Riemann surfaces. Infinite products. Partial fractions. Classical transcendental functions. Elliptic functions.

247A-247B. Classical Fourier Analysis. (4-4) Lecture, three hours. Requisites: courses 245A, 245B, 246A. Distribution on \mathbb{R}^n and \mathbb{T}^n . Principal values; other examples. Distributions with submanifolds as supports. Kernel theorem. Convolution; examples of singular integrals. Tempered distributions and Fourier transform theory on \mathbb{R}^n . Distributions with compact or one-sided supports and their complex Fourier transforms.

250A. Ordinary Differential Equations. (4) Requisite: course 246A. Basic theory of ordinary differential equations. Existence and uniqueness of solutions. Continuity with respect to initial conditions and parameters. Linear systems and n th order equations. Analytic systems with isolated singularities. Self-adjoint boundary value problems on finite intervals.

250B. Nonlinear Ordinary Differential Equations. (4) Requisite: course 250A. Asymptotic behavior of nonlinear systems. Stability. Existence of periodic solutions. Perturbation theory of two-dimensional real autonomous systems. Poincaré/Bendixson theory.

250C. Advanced Topics in Ordinary Differential Equations. (4) Requisites: courses 250A, 250B. Selected topics, such as spectral theory or ordinary differential operators, nonlinear boundary value problems, celestial mechanics, approximation of solutions, and Volterra equations.

251A. Introductory Partial Differential Equations. (4) Classical theory of heat, wave, and potential equations; fundamental solutions, characteristics and Huygens principle, properties of harmonic functions. Classification of second-order differential operators. Maximum principles, energy methods, uniqueness theorems. Additional topics as time permits.

251B-251C. Topics in Partial Differential Equations. (4-4) In-depth introduction to topics of current interest in partial differential equations or their applications.

252A-252B. Topics in Complex Analysis. (4-4) Lecture, three hours. Requisites: courses 245A, 245B, 245C, 246A, 246B, 246C. Potential theory, subharmonic functions, harmonic measure; Hardy spaces; entire functions; univalent functions; Rie-

mann surfaces; extremal length, variational methods, quasi-conformal mappings. Topics vary from year to year. S/U or letter grading.

253A-253B. Several Complex Variables. (4-4) Requisites: courses 245A, 245B, 245C, 246A, 246B, 246C. Introduction to analytic functions of several complex variables. The $\bar{\partial}$ -problem, Cousin problems, domains of holomorphy, complex manifolds.

254A-254B. Topics in Real Analysis. (4-4) Requisites: courses 245A, 245B, 245C, 246A, 246B, 246C. Selected topics in analysis and its applications to geometry and differential equations. Topics may vary from year to year. May be repeated for credit by petition.

Functional Analysis

255A. Functional Analysis. (4) Requisites: courses 245A and 245B, or 265A and 265B, and 246A. Banach spaces, basic principles. Weak topologies. Compact operators. Fredholm operators. Special spaces including Hilbert spaces and $C(X)$.

255B-255C. Topics in Functional Analysis. (4-4) Requisite: course 255A. Topics include Banach algebras, operators on Banach spaces and Hilbert space, semigroups of operators, linear topological vector spaces, and other related areas.

256A-256B. Topological Groups and Their Representations. (4-4) Lecture, three hours. Requisite: course 255A. Topological groups and their basic properties. Haar measure. Compact groups and their representations. Duality and Fourier analysis on locally compact abelian groups. Induced representations, Frobenius reciprocity. Representations of special groups (Lorentz, Galilean, etc.). Projective representations. Representations of totally disconnected groups. S/U or letter grading.

259A-259B. Operator Algebras in Hilbert Space. (4-4) Requisites: courses 255A, 255B, 255C. Selected topics from theories of C^* and von Neumann algebras. Applications.

Applied Mathematics

260. Introduction to Applied Mathematics. (4) Requisite: course 142. Construction, analysis, and interpretation of mathematical models of problems which arise outside of mathematics.

261. Game Theory. (4) (Formerly numbered M261.) Lecture, three hours. Designed for graduate mathematics students. Bargaining theory, core, value, other solution concepts. Applications to oligopoly, general exchange and production economies, and allocation of joint costs. S/U or letter grading.

264. Applied Complex Analysis. (4) Requisite: course 246A. Topics include contour integration conformal mapping, differential equations in complex plane, special functions, asymptotic series, Fourier and Laplace transforms, singular integral equations.

265A-265B. Real Analysis for Applications. (4-4) Requisites: courses 131A, 131B. Not open for credit to students with credit for courses 245A, 245B, 245C. Lebesgue measure and integration on real line, absolutely continuous functions, functions of bounded variation, L^2 - and L^p -spaces. Fourier series. General measure and integrations, Fubini and Radon/Nikodym theorems, representation of functionals, Fourier integrals.

266A. Applied Ordinary Differential Equations. (4) Lecture, three hours; discussion, one hour. Requisites: courses 131A, 131B, 132, and 134 and 135, or 146. Spectral theory of regular boundary value problems and examples of singular Sturm/Liouville problems, related integral equations, phase/plane analysis of nonlinear equations. S/U or letter grading.

266B-266C. Applied Partial Differential Equations. (4-4) Requisite: course 266A. Classification of equations, classical potential theory, Dirichlet and Neumann problems. Green's functions, spectral theory of Laplace equation in bounded domains, first-order equations, wave equations, Cauchy problem, energy conservation, heat equation, fundamental solution, equations of fluid mechanics and magnetohydrodynamics.

266D-266E. Applied Differential Equations. (4-4)

Requisites: courses 266A, 266B, 266C. Advanced topics in linear and nonlinear partial differential equations, with emphasis on energy estimates, numerical methods, and applications to fluid mechanics. Additional topics include dispersive waves, systems with multiple time scales, and applications to fluid mechanics.

M268A. Functional Analysis for Applied Mathematics and Engineering. (4) (Same as Electrical Engineering M208B.) Lecture, four hours. Requisites: courses 115A and 115B (or Electrical Engineering 208A), 131A, 131B, 132. Topics may include L^p spaces, Hilbert, Banach, and separable spaces; Fourier transforms; linear functionals. Riesz representation theory, linear operators and their adjoints; self-adjoint and compact operators. Spectral theory. Differential operators such as Laplacian and eigenvalue problems. Resolvent distributions and Green's functions. Semigroups. Applications. S/U or letter grading.

M268B. Topics in Functional Analysis for Applied Mathematics and Engineering. (4) (Formerly numbered 268B.) (Same as Electrical Engineering M208C.) Lecture, four hours. Requisite: course M268A. Semigroups of linear operators over Hilbert spaces; generator and resolvent, generation theorems, Laplace inversion formula. Dissipative operators and contraction semigroups. Analytic semigroups and spectral representation. Semigroups with compact resolvents. Parabolic and hyperbolic systems. Controllability and stabilizability. Spectral theory of differential operators, PDEs, generalized functions. S/U or letter grading.

268C. Topics in Applied Functional Analysis. (4)

Requisite: course 255A. Topics include spectral theory with applications to ordinary differential operators, eigenvalue problems for differential equations, generalized functions, and partial differential equations. S/U or letter grading.

269A-269B-269C. Advanced Numerical Analysis. (4-4-4)

Lecture, three hours; discussion, one hour. Requisites: courses 115A, 151A, 151B. Numerical solution for systems of ordinary differential equations; initial and boundary value problems. Numerical solution for elliptic, parabolic, and hyperbolic partial differential equations. Topics in computational linear algebra. S/U or letter grading.

270A-270F. Mathematical Aspects of Scientific Computing. (4 each) Lecture, three hours. S/U or letter grading:

270A. Techniques of Scientific Computing. (4) Lecture, three hours. Requisites: courses 115A, 151A, 151B, Program in Computing 10A. Mathematical modeling for computer applications, scientific programming languages, software development, graphics, implementation of numerical algorithms on different architectures, case studies. S/U or letter grading.

270B-270C. Computational Linear Algebra. (4-4) Lecture, three hours. Requisites: courses 115A, 151A, 151B, Program in Computing 10A. Direct, fast, and iterative algorithms, overdetermined systems; singular value decomposition, regularization, sparse systems, algebraic eigenvalue problem. S/U or letter grading.

270D-270E. Computational Fluid Dynamics. (4-4) Lecture, three hours. Requisites: courses 115A, 151A, 151B, Program in Computing 10A. Basic equations, finite difference, finite element, pseudo-spectral, and vortex methods; stability, accuracy, shock capturing, and boundary approximations. S/U or letter grading.

270F. Parallel Numerical Algorithms. (4) Lecture, three hours. Requisites: courses 115A, 151A, 151B, 270B, 270C, Program in Computing 10A. Recommended: courses 270A, 270D, 270E. Design, analysis, and implementation of numerical algorithms on modern vector and parallel computers. Discussion of classical numerical algorithms and novel parallel algorithms. Emphasis on applications to PDEs. S/U or letter grading.

271A. Tensor Analysis. (4) Requisite: course 131A. Algebra and calculus of tensors on n -dimensional manifolds. Curvilinear coordinates and coordinate-

free methods. Covariant differentiation. Green/Stokes theorem for differential forms. Applications to topics such as continuum and particle mechanics.

271B. Analytical Mechanics. (4) Preparation: prior knowledge of mechanics. Requisite: course 271A. Newtonian and Lagrangian equations. Hamilton principle. Principle of least action. Holonomic and non-holonomic systems. Hamilton canonical equations, contact transformations, applications.

271C. Introduction to Relativity. (4) Preparation: prior knowledge of mechanics. Requisite: course 271A. Restricted theory of relativity. Extensions to general theory. Relativistic theory of gravitation.

271D. Wave Mechanics. (4) General concepts of mechanical systems (states, space-time, "logics," etc.). Classical and quantum examples. Correspondence principle. Spinors.

272A. Foundations of Continuum Mechanics. (4) Lecture, three hours. Kinematic preliminaries, conservation laws for mass, momentum and energy, entropy production, constitutive laws. Linear elasticity, inviscid fluid, viscous fluid. Basic theorems of fluid mechanics. Simple solutions. Low Reynolds number flow, Stokes drag. High Reynolds number flow, boundary layers. Two-dimensional potential flow, simple aerofoil. Compressible flow, shocks.

272B. Mathematical Aspects of Fluid Mechanics. (4) Lecture, three hours. Requisite: course 272A. Review of basic theory of moving continua, fluid equations, integral theorems. Simple solutions, flow created by slowly moving bodies, flows where viscosity is negligible, vortices, boundary layers and their separation, water waves, ship waves, compressional waves, shock waves, turbulence theory (overview).

272C. Magnetohydrodynamics. (4) Lecture, three hours. Requisite: course 272A. Basic electromagnetism. Steady flows, Hartmann layers. Alfvén theorem and waves. Compressible media. Magnetostatic equilibria and stability.

272D. Rotating Fluids and Geophysical Fluid Dynamics. (4) Lecture, three hours. Effects of Coriolis forces on fluid behavior. Inviscid flows, Taylor/Proudman theorem, Taylor columns, motions of bodies, inertial waves in spheres and spherical shells, Rossby waves. Ekman layers, spin-up. Shallow-water theory, wind-driven ocean circulation. Effects of stratification, Bénard convection. Baroclinic instability, Eady model. S/U or letter grading.

273. Optimization, Calculus of Variations, and Control Theory. (4) Application of abstract mathematical theory to optimization problems of calculus of variations and control theory. Abstract nonlinear programming and applications to control systems described by ordinary differential equations, partial differential equations, and functional differential equations. Dynamic programming.

274A. Asymptotic Methods. (4) Lecture, three hours. Requisite: course 132. Fundamental mathematics of asymptotic analysis, asymptotic expansions of Fourier integrals, method of stationary phase. Watson lemma, method of steepest descent, uniform asymptotic expansions, elementary perturbation problems. S/U or letter grading.

274B-274C. Perturbation Methods. (4-4) Lecture, three hours. Requisite: course 266A. Boundary layer theory, matched asymptotic expansions, WKB method. Problems with several time scales: Poincaré method, averaging techniques, multiple-scale analysis. Application to eigenvalue problems, nonlinear oscillations, wave propagation, and bifurcation problems. Examples from various fields of science and engineering.

Probability and Statistics

275A-275B. Probability Theory. (4-4) Requisite: course 245A or 265A. Connection between probability theory and real analysis. Weak and strong laws of large numbers, central limit theorem, conditioning, ergodic theory, martingale theory.

275C. Stochastic Processes. (4) Lecture, three hours. Requisite: course 275B. Brownian motion, continuous-time martingales, Markov processes, potential theory. S/U or letter grading.

275D. Stochastic Calculus. (4) Lecture, three hours. Requisite: course 275C. Stochastic integration, stochastic differential equations, Ito formula and its applications. S/U or letter grading.

275E. Stochastic Particle Systems. (4) Lecture, three hours. Requisite: course 275C. Interacting particle systems, including contact process, stochastic Ising model, and exclusion processes; percolation theory. S/U or letter grading.

Special Studies

285A-285N. Seminars. (4 each) Seminar, three hours. No more than two 285 courses may be applied toward M.A. degree requirements except by prior consent of graduate vice chair. Topics in various branches of mathematics and their applications by means of lectures and informal conferences with staff members. S/U or letter grading:

285A. History and Development of Mathematics.

285B. Number Theory.

285C. Algebra.

285D. Logic.

285E. Geometry.

285F. Topology.

285G. Analysis.

285H. Differential Equations.

285I. Functional Analysis.

285J. Applied Mathematics.

285K. Probability.

285L. Dynamical Systems.

285N. Combinatorics.

290A-290O. Seminars: Current Literature. (4 each) Seminar, three hours. Designed for Ph.D. students. Readings and presentations of papers in mathematical literature under supervision of staff member. Two-hour presentation required. S/U grading:

290A. History and Development of Mathematics.

290B. Number Theory.

290C. Algebra.

290D. Logic.

290E. Geometry.

290F. Topology.

290G. Analysis.

290H. Differential Equations.

290I. Functional Analysis.

290J. Applied Mathematics.

290K. Probability.

290L. Dynamical Systems.

290M. Mathematics.

290N. Combinatorics.

290O. Cryptography.

296A-296N. Participating Seminars. (1 each) Seminar, two hours. Seminars and discussion by staff and students. S/U grading:

296A. History and Development of Mathematics.

296B. Number Theory.

296C. Algebra.

296D. Logic.

296E. Geometry.

296F. Topology.

296G. Analysis.

296H. Differential Equations.

296I. Functional Analysis.

296J. Applied Mathematics.

296K. Probability.

296L. Dynamical Systems.

296M. Mathematics.

296N. Combinatorics.

370A-370B. Teaching of Mathematics. (4-4) Lecture, three hours; discussion, one hour. Requisite: course 33B. Limited to senior Mathematics Department majors. Course 370A is requisite to 370B. Topics in geometry, algebra, number theory, discrete

mathematics, and functions presented from a problem-solving and student participation point of view, with emphasis on historical context and appropriate role of proof. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Teaching College Mathematics. (2) Seminar, one hour; two-day intensive training at beginning of Fall Quarter. Required of all new teaching assistants and new Ph.D. students. Special course for teaching assistants designed to deal with problems and techniques of teaching college mathematics. S/U grading.

495B. Technology and Teaching. (2 to 4) Seminar, two hours; laboratory, one hour (when scheduled). Requisite: course 495. Focus on undergraduate mathematics instruction. Web-based electronic communication, using technology for class organization, use of presentation software packages, and creation of electronic teaching portfolio. Provides mechanics of technology and forum for evaluation and comparison of technology in undergraduate mathematics teaching. S/U grading.

501. Cooperative Program. (2 to 8) Preparation: consent of UCLA department chair and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. Directed Individual Study or Research. (2 to 8) Tutorial, to be arranged. Supervised individual reading and study on project approved by a faculty member, which may be preparation for M.A. examination. May be repeated for credit, but only two 596 courses (8 units) may be applied toward M.A. degree unless departmental consent is obtained. S/U or letter grading.

599. Research in Mathematics. (2 to 12) Tutorial, to be arranged. Preparation: advancement to Ph.D. candidacy. Study and research for Ph.D. dissertation. May be repeated for credit. S/U grading.

Program in Computing

Lower Division Courses

1. Introduction to Computers and Computing. (4) Lecture, three hours; laboratory, one hour. Not open for credit to students with credit for course 1S or 10A; may not be taken concurrently with course 1S or 10A. Fundamentals of computers and computing; editors, spreadsheets, file manager; machine organization and computer hardware; Internet; software applications. P/NP or letter grading.

1S. Software Tools for Information Management. (1) Lecture, one hour; laboratory, two hours. Preparation: some familiarity with computers. Not open for credit to students with credit for course 1; may not be taken concurrently with course 1. May be taken by students with credit for more advanced courses. Introduction to spreadsheets and databases in laboratory setting. P/NP grading.

3. Introduction to Computing for Social Sciences and Humanities. (4) Lecture, three hours; discussion, two hours. No prior programming knowledge required. Not open for credit to students pursuing specializations in Computing or to students with credit for course 20A. Basic principles of object-oriented programming and concepts, with applications from social sciences and humanities. Overview of Java programming language, programming with objects, control structures and functions, classes and object-oriented design, event-driven programming, application to multi-agent models. P/NP or letter grading.

10A. Introduction to Programming. (5) Lecture, three hours; discussion, two hours; laboratory, eight hours. Recommended prerequisite for students with no prior computing experience: course 1. No prior program-

ming experience assumed. Basic principles of programming, using C++; algorithmic, procedural problem solving; program design and development; basic data types, control structures and functions; functional arrays and pointers; introduction to classes for programmer-defined data types. P/NP or letter grading.

10B. Intermediate Programming. (5) Lecture, three hours; discussion, two hours; laboratory, eight hours. Enforced prerequisite: course 10A. Abstract data types and their implementation using C++ class mechanism; dynamic data structures, including linked lists, stacks, queues, trees, and hash tables; applications; object-oriented programming and software reuse; recursion; algorithms for sorting and searching. P/NP or letter grading.

10C. Advanced Programming. (5) Lecture, three hours; discussion, two hours; laboratory, eight hours. Enforced prerequisite: course 10B. More advanced algorithms and data structuring techniques; additional emphasis on algorithmic efficiency; advanced features of C++, such as inheritance and virtual functions; graph algorithms. P/NP or letter grading.

15. Introduction to Lisp and Symbolic Computation. (5) Lecture, three hours; discussion, two hours; laboratory, eight hours. Enforced prerequisite: course 10A. Introduction to symbolic computation using Lisp programming language. Basics: list structures, recursion, function abstraction. Advanced topics: knowledge representation, higher-order functions, problem-solving algorithms and heuristics. P/NP or letter grading.

20A. Principles of Java Language with Applications. (5) Lecture, three hours; discussion, two hours; laboratory, eight hours. Enforced prerequisite: course 10A. Not open for credit to students with credit for course 3. Introduction to Java computer language. Class and interface hierarchies; graphics components and graphical user interfaces; streams; multithreading; event and exception handling. Issues in class design and design of interactive Web pages. P/NP or letter grading.

20B. Advanced Aspects of Java Language with Applications. (5) Lecture, three hours; discussion, two hours; laboratory, eight hours. Enforced prerequisite: course 20A. Further aspects of use of classes, graphics components, exception handling, multithreading, and multimedia. Additional topics may include networking, servlets, database connectivity, and JavaBeans. P/NP or letter grading.

20C. Seminar: Enterprise Computing with Java. (5) Lecture, three hours; discussion, two hours; laboratory, five hours. Enforced prerequisite: course 20B. Overview of Enterprise Java APIs: remote method invocation, database access with SQL, servlets, and JSP. Issues in implementation of server-side Java applications. Use of Java in conjunction with XML. Individual or group projects and presentations. P/NP or letter grading.

30. Machine Organization and Assembly Language Programming. (5) Lecture, three hours; discussion, two hours; laboratory, eight hours. Enforced prerequisite: course 10B. Description of machine organization and operation. Representation of information, instruction sets and formats, addressing modes, memory organization and management, input/output (I/O) processing and interrupts. P/NP or letter grading.

40A. Introduction to Programming for Internet. (5) Lecture, three hours; discussion, two hours; laboratory, eight hours. Enforced prerequisite: course 10A. Recommended: course 10B. Introduction to core technologies of Internet, with focus on client-side Web programming. Fundamental protocols, static Web pages, Perl language, Common Gateway Interface, XML. P/NP or letter grading.

40B. Advanced Topics in Programming for Internet. (5) Lecture, three hours; discussion, two hours; laboratory, eight hours. Enforced prerequisite: course 40A. Study of advanced topics in Web programming, with focus on server-side technologies. P/NP or letter grading.

60. Data Structures and Algorithms. (4) Lecture, three hours; discussion, one hour; laboratory, five hours. Enforced prerequisites: course 10B, Mathematics

31A, 31B, 61. Review of basic data structures: arrays, stacks, queues, lists, trees. Advanced data structures: priority queues, heaps, balanced trees. Sorting, searching techniques. Corresponding algorithms. P/NP or letter grading.

97. Special Topics in Programming. (1 to 4) Lecture, one to three hours; discussion, zero to one hour. Enforced prerequisite: course 10A. Variable topics in programming not covered in regular program in computing courses. May be repeated for credit with topic change. P/NP or letter grading.

Upper Division Courses

110. Parallel and Distributed Computing. (5) Lecture, three hours; discussion, two hours; laboratory, eight hours. Requisite: course 10B or equivalent familiarity with programming in C or C++ language. Introduction to programming of parallel computers. Shared and distributed memory parallel architectures; currently available parallel machines; parallel algorithms and program development; estimation of algorithmic performance; distributed computing; selected advanced topics. P/NP or letter grading.

130. Cryptography. (4) Lecture, three hours; discussion, one hour; laboratory, three hours. Requisites: course 10B, Mathematics 115A. Design and analysis of cryptosystems for confidentiality and authentication. Classical cryptosystems and their security, modern private-key cryptosystems and applications, public-key cryptography and applications; generating prime numbers, factoring integers, discrete logarithms, digital signatures, perfect secrecy. P/NP or letter grading.

187. Advanced Variable Topics in Programming. (4) Lecture, three hours; discussion, one hour. Variable topics in programming and mathematics of programming not covered in regular program in computing courses. May be repeated for credit with topic change. P/NP or letter grading.

Graduate Courses

285C-285L. Seminars. (4 each) Seminar, three hours. Considered equivalent to Mathematics 285A through 285L for purposes of degree requirements. Topics in various computational fields by means of lectures and informal conferences with staff members. S/U or letter grading.

285C. Computational Algebra.

285D. Logic and Theory of Computation.

285J. Scientific Computation.

285K. Randomness and Computation.

285L. Computational Statistics.

296. Participating Seminar: Logic and Theory of Computation. (1 to 4) Seminar, to be arranged. Seminar and discussion by staff and students. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

MATHEMATICS/ ATMOSPHERIC AND OCEANIC SCIENCES

Interdepartmental Program
College of Letters and Science

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http://www.atmos.ucla.edu/idp/

Robert G. Fovell, Ph.D., *Chair*

Faculty Administrative Committee

Christopher R. Anderson, Ph.D. (*Mathematics*)
Robert G. Fovell, Ph.D. (*Atmospheric and Oceanic Sciences*)
J. David Neelin, Ph.D. (*Atmospheric and Oceanic Sciences*)
Peter Peterson, Ph.D. (*Mathematics*)

Scope and Objectives

The Mathematics/Atmospheric and Oceanic Sciences B.S. degree program is designed for students who have an interest in and talent for both subjects. Students completing the major are well-qualified for graduate study in the most demanding graduate programs in atmospheric sciences, oceanic sciences, or applied mathematics. Postgraduate training leads to employment at a professional level in academia, government, or private enterprise. Opportunities outside academia include environmental agencies, consulting companies, and governmental agencies such as NASA, National Oceanic and Atmospheric Administration (NOAA), National Center for Atmospheric Research (NCAR), Department of Energy (DOE), and the military, the Air Force and Navy in particular.

Graduates of the program are employed by private and public weather products firms, consulting companies, public utilities, and as science teachers at the elementary and secondary levels.

Undergraduate Study

The Mathematics/Atmospheric and Oceanic Sciences major is a designated capstone major. Students acquire experience in conceiving and executing research projects designed to evaluate hypotheses and complete an individual project or thesis selected with the assistance of the program advisers and faculty mentor. The topic should reflect integrative application of mathematics to atmospheric and oceanic sciences. Students are expected to prepare a significant independent piece of work that applies knowledge gained in their coursework in a new and unique way.

Mathematics/Atmospheric and Oceanic Sciences B.S.

Capstone Major

Preparation for the Major

Required: Mathematics 31A, 31B, 32A, 32B, 33A, 33B, Physics 1A, 1B, 1C, Program in Computing 10A, and two courses selected from Atmospheric and Oceanic Sciences 1, 2, 3, 5. Physics 4AL and 4BL are recommended but not required. Chemistry and Biochemistry 14A and 14B (or 20A and 20B) may also be required, depending on atmospheric and oceanic sciences upper division course selection. Each course must be taken for a letter grade and must be passed with a grade of C– or better, and students must have a minimum overall grade-point average of 2.0 for the courses.

Transfer Students

Transfer applicants to the Mathematics/Atmospheric and Oceanic Sciences major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: two years of calculus for majors, physics courses equivalent to Physics 1A, 1B, and 1C, and one C++ programming course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Six mathematics courses, including Mathematics 115A, 131A, 134, and three elective courses selected from 115B, 131B, 135, 136, 142, 151A, 151B, 170A, 170B, one of which must be 115B, 131B, 151B, or 170B; six atmospheric and oceanic sciences courses, including three core courses selected from Atmospheric and Oceanic Sciences 101, 102, 103, 104, M105, and three elective courses selected from the five listed above (if not taken to satisfy the core requirement) or from C110, C115, M120, 125, 130, 145, C160, C170, 180, CM185.

One capstone senior projects/thesis course, Atmospheric and Oceanic Sciences 199, taken for a minimum of 2 units, is also required. An individual project or thesis to be selected with the assistance of the program advisers and a faculty mentor must be completed.

No more than one course may be applied toward both this major and a major or minor in another department or program.

MATHEMATICS/ ECONOMICS

Interdepartmental Program
College of Letters and Science

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<http://www.math.ucla.edu/ugrad/mathecon.shtml>

Don M. Blasius, Ph.D., *Chair*

Faculty Administrative Committee

Don M. Blasius, Ph.D. (*Mathematics*)
Moshe Buchinsky, Ph.D. (*Economics*)
Russel E. Cafilisch, Ph.D. (*Mathematics*)
Kathleen M. McGarry, Ph.D. (*Economics*)
Peter Petersen, Ph.D. (*Mathematics*)
Marek G. Pycia, Ph.D. (*Economics*)
Sebastien Roch, Ph.D. (*Mathematics*)
William R. Zame, Ph.D. (*Economics, Mathematics*)

Scope and Objectives

In recent years economics has become increasingly dependent on mathematical methods, and the mathematical tools it employs have become more sophisticated. Mathematically competent economists, with bachelor's degrees and with advanced degrees, are needed in industry and government. Graduate programs in economics and finance programs in graduate schools of management require strong undergraduate preparation in mathematics for admission.

The Mathematics/Economics B.S. degree program is designed to give students a solid foundation in both mathematics and economics, stressing those areas of mathematics and statistics that are most relevant to economics and the parts of economics that emphasize the use of mathematics and statistics. It is ideal for students who may wish to complete a higher degree in economics.

Undergraduate Study

Mathematics/Economics B.S.

Preparation for the Major

Required: Mathematics 31A, 31B, 32A, 32B, 33A, 33B, 61, Economics 1, 2, 11, Program in Computing 10A, one Writing II course. Each course must be taken for a letter grade. The economics preparation for the major courses (Mathematics 31A, 31B, Economics 1, 2, and 11) are calculated separately from the mathematics preparation for the major courses (Mathematics 32A, 32B, 33A, 33B, 61, and Program in Computing 10A). The economics preparation courses must be completed with a minimum overall 2.5 grade-point average and a C or better in each course. The mathematics preparation courses must be completed with a minimum overall 2.0 grade-point average, and

students must receive a C or better in the Writing II course.

Repetition of more than one economics preparation course or of any economics preparation course more than once results in automatic dismissal from the major.

Transfer Students

Transfer applicants to the Mathematics/Economics major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: two years of calculus for majors, one introduction to discrete structures course, one microeconomic theory course, one macroeconomics course, and one C++ programming course.

Transfer credit for any of the above is subject to department approval; consult an undergraduate counselor before enrolling in any courses for the major.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Six mathematics/statistics courses, including Mathematics 115A, 131A, 170A or Statistics 100A, 170B or Statistics 100B, and two courses from Mathematics 131B, 164, 174; five economics courses, including Economics 101, 102, 103, and two additional courses from 106E through 199B. Each course must be taken for a letter grade. Transfer credit is subject to department approval; consult an undergraduate counselor before enrolling in any courses for the major.

To graduate, the six Mathematics Department courses must be passed with an overall grade-point average of 2.0, as must the five courses from the Economics Department, with grades of C– or better in Economics 101 and 102.

Honors Program

Students who wish to graduate with departmental honors should apply for admission to the honors program in the Mathematics Department Student Services Office. They may apply any time after completing the preparation for the major courses with an overall grade-point average of 3.5 or better.

To qualify for honors at graduation, students must (1) complete Mathematics 110BH or 131BH, and 115AH, (2) prepare a senior thesis acceptable to the departmental honors committee, (3) present the thesis in Economics 198A and 198B, and (4) complete the major requirements with at least a 3.5 GPA in the mathematics and economics courses. Highest honors are awarded at the discretion of the departmental honors committee based on grade-point average and quality of the senior thesis.

Computing Specialization

Students may select a specialization in Computing by (1) satisfying all the requirements for a bachelor's degree in the major and (2) com-

pleting Mathematics 61 or 180, Program in Computing 10A, 10B, two courses from 10C, 15, 20A, 20B, 30, 40A, 60, and at least two courses from Mathematics 149 through 159, with a minimum grade of C– in each course and a combined grade-point average of at least 2.0. Students must petition for admission to the program and are advised to do so after they complete Program in Computing 10B (petitions should be filed in the Mathematics Department Student Services Office). Students graduate with a bachelor's degree in mathematics/economics and a specialization in Computing.

MECHANICAL AND AEROSPACE ENGINEERING

Henry Samueli School of Engineering and Applied Science

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Adrienne G. Lavine, Ph.D., *Chair*
Robert T. M'Closkey, Ph.D., *Vice Chair*
Xiaolin Zhong, Ph.D., *Vice Chair*

Professors

Mohamed A. Abdou, Ph.D.
Oddvar O. Bendiksen, Ph.D.
Gregory P. Carman, Ph.D.
Ivan Catton, Ph.D.
Jiun-Shyan Chen, Ph.D.
Yong Chen, Ph.D.
Vijay K. Dhir, Ph.D., *Dean*
Rajit Gadh, Ph.D.
Nasr M. Ghoniem, Ph.D.
James S. Gibson, Ph.D.
Vijay Gupta, Ph.D.
Chih-Ming Ho, Ph.D. (*Ben Rich Lockheed Martin Professor of Aeronautics*)
Tetsuya Iwasaki, Ph.D.
Ann R. Karagozian, Ph.D.
Chang-Jin (C-J) Kim, Ph.D.
J. John Kim, Ph.D. (*Rockwell Collins Professor of Engineering*)
Adrienne G. Lavine, Ph.D.
Kuo-Nan Liou, Ph.D.
Christopher S. Lynch, Ph.D.
Ajit K. Mal, Ph.D.
Robert T. M'Closkey, Ph.D.
Anthony F. Mills, Ph.D.
Owen I. Smith, Ph.D.
Jason Speyer, Ph.D.
Tsu-Chin Tsao, Ph.D.
Daniel C.H. Yang, Ph.D.
Xiaolin Zhong, Ph.D.

Professors Emeriti

Andrew F. Charwat, Ph.D.
Peretz P. Friedmann, Sc.D.
H. Thomas Hahn, Ph.D. (*Raytheon Company Professor Emeritus of Manufacturing Engineering*)
Walter C. Hurty, M.S.
Robert E. Kelly, Sc.D.
Michel A. Melkanoff, Ph.D.
D. Lewis Mingori, Ph.D.
Peter A. Monkewitz, Ph.D.
Philip F. O'Brien, M.S.

David Okrent, Ph.D.
Lucien A. Schmit, Jr., M.S.
Richard E. Stern, Ph.D.
Russell A. Westmann, Ph.D.

Associate Professors

Jeff D. Eldredge, Ph.D.
Y. Sungtaek Ju, Ph.D.
H. Pirouz Kavehpour, Ph.D.
William S. Klug, Ph.D.
Laurent G. Pilon, Ph.D.

Assistant Professors

Pei-Yu Chiou, Ph.D.
Richard E. Wirz, Ph.D.

Lecturers

Ravneesh C. Amar, Ph.D.
Amiya K. Chatterjee, Ph.D.
Carl F. Ruoff, Ph.D.
Judy I. Shane, M.S.
Mahmoud Youssef, Ph.D.

Adjunct Professors

Leslie M. Lackman, Ph.D.
Wilbur J. Marnar, Ph.D.
Neil B. Morley, Ph.D.
Robert S. Shaefer, Ph.D.
Ronaldo Szilard, Ph.D.

Scope and Objectives

The Department of Mechanical and Aerospace Engineering offers curricula in aerospace engineering and mechanical engineering at both the undergraduate and graduate levels. The scope of the departmental research and teaching program is broad, encompassing dynamics, fluid mechanics, heat and mass transfer, manufacturing and design, nanoelectromechanical and microelectromechanical systems, structural and solid mechanics, and systems and control. The applications of mechanical and aerospace engineering are quite diverse, including aircraft, spacecraft, automobiles, energy and propulsion systems, robotics, machinery, manufacturing and materials processing, microelectronics, biological systems, and more.

At the undergraduate level, the department offers accredited programs leading to B.S. degrees in Aerospace Engineering and in Mechanical Engineering. At the graduate level, the department offers programs leading to M.S. and Ph.D. degrees in Mechanical Engineering and in Aerospace Engineering. An M.S. in Manufacturing Engineering is also offered.

Undergraduate Study

The Aerospace Engineering and Mechanical Engineering majors are designated capstone majors. Within their capstone courses, Aerospace Engineering students are exposed to the conceptual and design phases in new aircraft development and produce a structural design of a lightweight aircraft wing. Mechanical Engineering students work in teams in their capstone courses to propose, design, analyze, and build a mechanical or electromechanical device. Graduates of both programs should be able to apply their knowledge of mathematics, science, and engineering; design a system, component, or process to meet desired needs; function as productive members of a team; identify, formulate, and solve engineering

problems; and communicate effectively, both orally and in writing.

Aerospace Engineering B.S.

Capstone Major

The ABET-accredited aerospace engineering program is concerned with the design and construction of various types of fixed-wing and rotary-wing (helicopters) aircraft used for air transportation and national defense. It is also concerned with the design and construction of spacecraft, the exploration and utilization of space, and related technological fields.

Aerospace engineering is characterized by a very high level of technology. The aerospace engineer is likely to operate at the forefront of scientific discoveries, often stimulating these discoveries and providing the inspiration for the creation of new scientific concepts. Meeting these demands requires the imaginative use of many disciplines, including fluid mechanics and aerodynamics, structural mechanics, materials and aeroelasticity, dynamics, control and guidance, propulsion, and energy conversion.

Preparation for the Major

Required: Chemistry and Biochemistry 20A, 20B, 20L; Computer Science 31; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Physics 1A, 1B, 1C, 4AL, 4BL.

The Major

Required: Mechanical and Aerospace Engineering 101, 102, 103, 105A, 107, 150A, 150B, 150P, 154S, 155 or 161A or 169A, 157A, 157S, 166A, 171A, 182A; two departmental breadth courses (Electrical Engineering 100 and Materials Science and Engineering 104—if one or both of these courses are taken as part of the technical breadth requirement, students must select a replacement upper division course or courses from the department—except for Mechanical and Aerospace Engineering 156A—or, by petition, from outside the department); three technical breadth courses (12 units) selected from an approved list available in the Office of Academic and Student Affairs; two capstone design courses (Mechanical and Aerospace Engineering 154A, 154B); and two major field elective courses (8 units) from Mechanical and Aerospace Engineering 105D, 131A, 131AL, C132A, 133A, 133AL, 150C, C150G, 150R, 153A, 155 (unless taken as a required course), 161A (unless taken as a required course), 161B, 161C, 161D, 162A, 163A, 166C, M168, 169A (unless taken as a required course), 171B, 172, 181A, 182B, 182C, 183.

For information on University and general education requirements, see the College and Schools section earlier in this catalog.

Mechanical Engineering B.S.

Capstone Major

The ABET-accredited mechanical engineering program is designed to provide basic knowledge in thermodynamics, fluid mechanics, heat transfer, solid mechanics, mechanical design,

dynamics, control, mechanical systems, manufacturing, and materials. The program includes fundamental subjects important to all mechanical engineers.

Preparation for the Major

Required: Chemistry and Biochemistry 20A, 20B, 20L; Computer Science 31; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Mechanical and Aerospace Engineering 94; Physics 1A, 1B, 1C, 4AL, 4BL.

The Major

Required: Electrical Engineering 110L, Mechanical and Aerospace Engineering 101, 102, 103, 105A, 105D, 107, 131A or 133A, 156A, 157, 162A, 171A, 182A, 183; two departmental breadth courses (Electrical Engineering 100 and Materials Science and Engineering 104—if one or both of these courses are taken as part of the technical breadth requirement, students must select a replacement upper division course or courses from the department—except for Mechanical and Aerospace Engineering 166A—or, by petition, from outside the department); three technical breadth courses (12 units) selected from an approved list available in the Office of Academic and Student Affairs; two capstone design courses (Mechanical and Aerospace Engineering 162B, 162M); and two major field elective courses (8 units) from Mechanical and Aerospace Engineering 131A (unless taken as a required course), 131AL, C132A, 133A (unless taken as a required course), 133AL, 134, 135, 136, CM140, 150A, 150B, 150C, C150G, 150P, 150R, 153A, 155, 157A, 161A, 161B, 162C, 163A, 166C, M168, 169A, 171B, 172, 174, CM180, CM180L, 181A, 182B, 182C, 184, 185, C186, C187L.

For information on University and general education requirements, see the College and Schools section earlier in this catalog.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Mechanical and Aerospace Engineering offers the Master of Science (M.S.) degree in Manufacturing Engineering, Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Aerospace Engineering, and Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Mechanical Engineering.

Mechanical and Aerospace Engineering

Lower Division Courses

15. Technical Communication for Engineers. (2) Lecture, two hours; outside study, four hours. Requisite: English Composition 3. Understanding writing process. Determining the purpose. Prewriting. Principles of organizing technical information. Eliminating unnecessary words, structuring paragraphs clearly, structuring effective sentences. Writing abstracts, introductions, and conclusions. Drafting and revising coherent documents. Writing collaboratively. Letter grading.

94. Introduction to Computer-Aided Design and Drafting. (4) Lecture, two hours; laboratory, four hours. Fundamentals of computer graphics and two- and three-dimensional modeling on computer-aided design and drafting systems. Students use one or more online computer systems to design and display various objects. Letter grading.

Upper Division Courses

101. Statics and Strength of Materials. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: Mathematics 31A, 31B, Physics 1A. Review of vector representation of forces, resultant force and moment, equilibrium of concurrent and nonconcurrent forces. Determinate and indeterminate force systems. Area moments and products of inertia. Support reactions and free-body diagrams for simple models of mechanical and aerospace structures. Internal forces in beams, shear and moment diagrams. Cauchy's stress and linear strain components in solids, equilibrium equations, Hooke's law for isotropic solids. Saint Venant's problems of extension, bending, flexure, and torsion. Deflection of symmetric beams. Axial and hoop stresses in thin-walled pressure vessels. Letter grading.

102. Dynamics of Particles and Rigid Bodies. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: course 101, Mathematics 33A, Physics 1A. Fundamental concepts of Newtonian mechanics. Kinematics and kinetics of particles and rigid bodies in two and three dimensions. Impulse-momentum and work-energy relationships. Applications. Letter grading.

103. Elementary Fluid Mechanics. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: Mathematics 32B, 33A, Physics 1B. Introductory course dealing with application of principles of mechanics to flow of compressible and incompressible fluids. Letter grading.

105A. Introduction to Engineering Thermodynamics. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: Chemistry 20B, Mathematics 32B. Phenomenological thermodynamics. Concepts of equilibrium, temperature, and reversibility. First law and concept of energy; second law and concept of entropy. Equations of state and thermodynamic properties. Engineering applications of these principles in analysis and design of closed and open systems. Letter grading.

105D. Transport Phenomena. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 103, 105A, Mathematics 32B, 33B. Transport phenomena; heat conduction, mass species diffusion, convective heat and mass transfer, and radiation. Engineering applications in thermal and environmental control. Letter grading.

107. Introduction to Modeling and Analysis of Dynamic Systems. (4) Lecture, three hours; discussion, one hour; laboratory, two hours; outside study, four hours. Requisites: Computer Science 31, Electrical Engineering 100. Introduction to modeling of physical systems, with examples of mechanical, fluid, thermal, and electrical systems. Description of these systems with coverage of impulse response, convolution, frequency response, first- and second-order system transient response analysis, and numerical solution. Nonlinear differential equation descriptions with dis-

discussion of equilibrium solutions, small signal linearization, large signal response. Block diagram representation and response of interconnections of systems. Hands-on experiments reinforce lecture material. Letter grading.

131A. Intermediate Heat Transfer. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 105D, 182A, Computer Science 31. Steady conduction: two-sided, two-ended, tapered, and circular fins; buried cylinders, thick fins. Transient conduction: slabs, cylinders, products. Convection: transpiration, laminar pipe flow, film condensation, boundary layers, dimensional analysis, working correlation, surface radiation. Two-stream heat exchangers. Elements of thermal design. Letter grading.

131AL. Thermodynamics and Heat Transfer Laboratory. (4) Laboratory, eight hours; outside study, four hours. Requisites: courses 131A, and 157 or 157S. Experimental study of physical phenomena and engineering systems using modern data acquisition and processing techniques. Experiments include studies of heat transfer phenomena and testing of cooling tower, heat exchanger, and internal combustion engine. Students take and analyze data and discuss physical phenomena. Letter grading.

C132A. Mass Transfer. (4) (Formerly numbered 132A.) Lecture, four hours; outside study, eight hours. Requisites: courses 105D, 131A. Principles of mass transfer by diffusion and convection. Simultaneous heat and mass transfer. Transport in multicomponent systems. Thermal, forced, and pressure diffusion, Brownian diffusion. Analysis of evaporative and transpiration cooling, catalysis, and combustion. Mass exchangers, including automobile catalytic converters, electrostatic precipitators, filters, scrubbers, humidifiers, and cooling towers. Concurrently scheduled with course C232A. Letter grading.

133A. Engineering Thermodynamics. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 103, 105A. Applications of thermodynamic principles to engineering processes. Energy conversion systems. Rankine cycle and other cycles, refrigeration, psychrometry, reactive and non-reactive fluid flow systems. Letter grading.

133AL. Power Conversion Thermodynamics Laboratory. (4) Laboratory, eight hours; outside study, four hours. Requisites: courses 133A, and 157 or 157S. Experimental study of power conversion and heat transfer systems using state-of-art plant process instrumentation and equipment. Experiments include studies of thermodynamic operating characteristics of actual Brayton cycle, Rankine cycle, compressive refrigeration unit, and absorption refrigeration unit. Letter grading.

134. Design and Operation of Thermal Hydraulic Power Systems. (4) Lecture, three hours; laboratory, three hours; outside study, six hours. Requisites: courses 133A, 133AL. Thermal hydraulic design, maintenance and operation of power systems, gas turbines, steam turbines, centrifugal refrigeration units, absorption refrigeration units, compressors, valves and piping systems, and instrumentation and control systems. Letter grading.

135. Fundamentals of Nuclear Science and Engineering. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: Chemistry 20A, Mathematics 33B. Review of nuclear physics, radioactivity and decay, and radiation interaction with matter. Nuclear fission and fusion processes and mass defect, chain reactions, criticality, neutron diffusion and multiplication, heat transfer issues, and applications. Introduction to nuclear power plants for commercial electricity production, space power, spacecraft propulsion, nuclear fusion, and nuclear science for medical uses. Letter grading.

136. Energy and Environment. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 105D. Recommended: courses 131A, 133A. Global energy use and supply, electrical power generation, fossil fuel and nuclear power plants, renewable energy such as hydropower, bio-

mass, geothermal, solar, wind, and ocean, fuel cells, transportation, energy conservation, air and water pollution, global warming. Letter grading.

CM140. Introduction to Biomechanics. (4) (Same as Biomedical Engineering CM140.) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 101, 102, 156A. Introduction to mechanical functions of human body; skeletal adaptations to optimize load transfer, mobility, and function. Dynamics and kinematics. Fluid mechanics applications. Heat and mass transfer. Power generation. Laboratory simulations and tests. Concurrently scheduled with course CM240. Letter grading.

150A. Intermediate Fluid Mechanics. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Enforced requisites: courses 103, 182A. Basic equations governing fluid motion. Fundamental solutions of Navier/Stokes equations. Lubrication theory. Elementary potential flow theory. Boundary layers. Turbulent flow in pipes and boundary layers. Compressible flow: normal shocks, channel flow with friction or heat addition. Letter grading.

150B. Aerodynamics. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 103, 150A. Advanced aspects of potential flow theory. Incompressible flow around thin airfoils (lift and moment coefficients) and wings (lift, induced drag). Gas dynamics: oblique shocks, Prandtl/Meyer expansion. Linearized subsonic and supersonic flow around thin airfoils and wings. Wave drag. Transonic flow. Letter grading.

150C. Combustion Systems. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 103, 105A. Chemical thermodynamics of ideal gas mixtures, premixed and diffusion flames, explosions and detonations, combustion chemistry, high explosives. Combustion processes in rocket, turbine, and internal combustion engines; heating applications. Letter grading.

C150G. Fluid Dynamics of Biological Systems. (4) (Formerly numbered 150D.) Lecture, four hours; outside study, eight hours. Requisite: course 103. Mechanics of aquatic locomotion; insect and bird flight aerodynamics; pulsatile flow in circulatory system; rheology of blood; transport in microcirculation; role of fluid dynamics in arterial diseases. Concurrently scheduled with course C250G. Letter grading.

150P. Aircraft Propulsion Systems. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 105A, 150A. Thermodynamic properties of gases, aircraft jet engine cycle analysis and component performance, component matching, advanced aircraft engine topics. Letter grading.

150R. Rocket Propulsion Systems. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: courses 103, 105A. Not open to students with credit for both courses 161B and 161R. Rocket propulsion concepts, including chemical rockets (liquid, gas, and solid propellants), hybrid rocket engines, electric (ion, plasma) rockets, nuclear rockets, and solar-powered vehicles. Current issues in launch vehicle technologies. Letter grading.

153A. Engineering Acoustics. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Designed for junior/senior engineering majors. Fundamental course in acoustics; propagation of sound; sources of sound. Design of field measurements. Estimation of jet and blade noise with design aspects. Letter grading.

154A. Preliminary Design of Aircraft. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 154S. Classical preliminary design of aircraft, including weight estimation, performance and stability, and control consideration. Term assignment consists of preliminary design of low-speed aircraft. Letter grading.

154B. Design of Aerospace Structures. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 154A, 166A. Design of aircraft, helicopter, spacecraft, and related structures. External loads, internal stresses. Applied theory of thin-walled structures. Material selection, design using composite ma-

terials. Design for fatigue prevention and structural optimization. Field trips to aerospace companies. Letter grading.

154S. Flight Mechanics, Stability, and Control of Aircraft. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: courses 150A, 150B. Aircraft performance, flight mechanics, stability, and control; some basic ingredients needed for design of aircraft. Effects of airplane flexibility on stability derivatives. Letter grading.

155. Intermediate Dynamics. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 102. Axioms of Newtonian mechanics, generalized coordinates, Lagrange equation, variational principles; central force motion; kinematics and dynamics of rigid bodies. Euler equations, motion of rotating bodies, oscillatory motion, normal coordinates, orthogonality relations. Letter grading.

156A. Advanced Strength of Materials. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 101, 182A. Not open to students with credit for course 166A. Concepts of stress, strain, and material behavior. Stresses in loaded beams with symmetric and asymmetric cross sections. Torsion of cylinders and thin-walled structures, shear flow. Stresses in pressure vessels, press-fit and shrink-fit problems, rotating shafts. Curved beams. Contact stresses. Strength and failure, plastic deformation, fatigue, elastic instability. Letter grading.

157. Basic Mechanical Engineering Laboratory. (4) Laboratory, four hours; outside study, eight hours. Requisites: courses 101, 103, 105A, 105D, Electrical Engineering 100. Methods of measurement of basic quantities and performance of basic experiments in heat transfer, fluid mechanics, structures, and thermodynamics. Primary sensors, transducers, recording equipment, signal processing, and data analysis. Letter grading.

157A. Fluid Mechanics and Aerodynamics Laboratory. (4) Laboratory, eight hours; outside study, four hours. Requisites: courses 150A, 150B, and 157 or 157S. Experimental illustration of important physical phenomena in area of fluid mechanics/aerodynamics, as well as hands-on experience with design of experimental programs and use of modern experimental tools and techniques in field. Letter grading.

157S. Basic Aerospace Engineering Laboratory. (4) Laboratory, eight hours; outside study, four hours. Requisites: courses 101, 102, 103, 105A, Electrical Engineering 100. Recommended: course 15. Measurements of basic physical quantities in fluid mechanics, thermodynamics, and structures. Operation of primary transducers, computer-aided data acquisition, signal processing, and data analysis. Performance of experiments to enhance understanding of basic physical principles and characteristics of structures/systems of relevance to aerospace engineering. Letter grading.

161A. Introduction to Astronautics. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 102. Recommended: course 182A. Space environment of Earth, trajectories and orbits, step rockets and staging, two-body problem, orbital transfer and rendezvous, problem of three bodies, elementary perturbation theory, influence of Earth's oblateness. Letter grading.

161B. Introduction to Space Technology. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Recommended preparation: courses 102, 150P, 161A. Not open to students with credit for both courses 150R and 161R. Propulsion requirements for typical space missions, thermochemistry of propellants, internal ballistics, regenerative cooling, liquid propellant feed systems, POGO instability. Electric propulsion. Multistage rockets, separation dynamics. Satellite structures and materials, loads and vibrations. Thermal control of spacecraft. Letter grading.

161C. Spacecraft Design. (4) Lecture, four hours; outside study, eight hours. Requisite: course 161B. Coverage of preliminary design, by students, of small spacecraft carrying lightweight scientific payload with modest requirements for electric power, lifetime, and at-

titude stability. Students work in groups of three or four, with each student responsible primarily for one subsystem and for integration with whole. Letter grading.

161D. Space Technology Hardware Design. (4) Lecture, two hours; laboratory, three hours; outside study, seven hours. Recommended requisite or corequisite: course 161B. Design, by students, of hardware with applications to space technology. Designs are then built by HSSEAS professional machine shop and tested by students. New project carried out each year. Letter grading.

161R. Space Technology and Rocket Propulsion. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisites: courses 103, 105A. Recommended: courses 105D, 161A. Not open for credit to students with credit for both courses 150R and 161B. Launch vehicles and rocket propulsion, including chemical rockets (liquid, gas, and solid propellants), hybrid rocket engines, electric (plasma) propulsion using solar and nuclear power. Propulsion requirements for typical space missions and multistage rockets. Spacecraft systems and dynamics, including power, instruments, communications, structure, materials, thermal control, and attitude control. Letter grading.

162A. Introduction to Mechanisms and Mechanical Systems. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: course 102, Computer Science 31. Analysis and synthesis of mechanisms and mechanical systems. Kinematics, dynamics, and mechanical advantages of machinery. Displacement velocity and acceleration analyses of linkages. Fundamental law of gearing and various gear trains. Computer-aided mechanism design and analysis. Letter grading.

162B. Mechanical Product Design. (4) Lecture, two hours; laboratory, four hours; outside study, six hours. Requisites: courses 94, 156A, 162A, 183, Electrical Engineering 110L. Lecture and laboratory (design) course involving modern design theory and methodology for development of mechanical products. Economics, marketing, manufacturability, quality, and patentability. Design considerations taught and applied to hands-on design project. Letter grading.

162C. Electromechanical System Design Laboratory. (4) Lecture, one hour; laboratory, eight hours; outside study, three hours. Requisite: course 162B. Laboratory and design course consisting of design, development, construction, and testing of complex mechanical and electromechanical systems. Assembled machine is instrumented and monitored for operational characteristics. Letter grading.

162D. Mechanical Engineering Design I. (4) Lecture, two hours; discussion, one hour; laboratory, four hours; outside study, five hours. Enforced requisite: course 94. Enforced requisites or corequisites: at least three courses from 131A or 133A, 156A, 162A, 171A, 183. Limited to seniors. First of two mechanical engineering capstone design courses. Lectures on engineering project management, design of thermal systems, mechatronics, mechanical systems, and mechanical components. Students work in teams to begin their two-term design project. Laboratory modules include CAD design, CAD analysis, mechatronics, and conceptual design for team project. Letter grading.

162E. Mechanical Engineering Design II. (4) Lecture/discussion, four hours; outside study, eight hours. Enforced requisite: course 162D. Limited to seniors. Second of two mechanical engineering capstone design courses. Student groups continue design projects started in course 162D, making use of CAD design laboratory, CAD analysis laboratory, and mechatronics laboratory. Design theory, design tools, economics, marketing, manufacturability, quality, intellectual property, design for manufacture and assembly, design for safety and reliability, and engineering ethics. Students conduct hands-on design, fabrication, and testing. Culminating project demonstrations or competition. Preparation of design project presentations in both oral and written formats. Letter grading.

162M. Senior Mechanical Engineering Design. (4) Lecture, one hour; laboratory, six hours; outside study, five hours. Requisites: courses 131A or 133A, 162B, 171A. Must be taken in last two academic

terms of students' programs. Analytical course of large engineering system. Design factors include functionality, efficiency, economy, safety, reliability, aesthetics, and social impact. Final report of engineering specifications and drawings to be presented by design teams. Letter grading.

163A. Introduction to Computer-Controlled Machines. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite or corequisite: course 171A. Modeling of computer-controlled machines, including electrical and electronic elements, mechanical elements, actuators, sensors, and overall electromechanical systems. Motion and command generation, servo-controller design, and computer/machine interfacing. Letter grading.

166A. Analysis of Flight Structures. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 101, 182A. Not open to students with credit for course 156A. Introduction to two-dimensional elasticity, stress-strain laws, yield and fatigue; bending of beams; torsion of beams; warping; torsion of thin-walled cross sections: shear flow, shear-lag; combined bending torsion of thin-walled, stiffened structures used in aerospace vehicles; elements of plate theory; buckling of columns. Letter grading.

166C. Design of Composite Structures. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 156A or 166A. History of composites, stress-strain relations for composite materials, bending and extension of symmetric laminates, failure analysis, design examples and design studies, buckling of composite components, nonsymmetric laminates, micromechanics of composites. Letter grading.

M168. Introduction to Finite Element Methods. (4) (Formerly numbered 168.) (Same as Civil Engineering M135C.) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 156A or 166A or Civil Engineering 130. Introduction to basic concepts of finite element methods (FEM) and applications to structural and solid mechanics and heat transfer. Direct matrix structural analysis; weighted residual, least squares, and Ritz approximation methods; shape functions; convergence properties; isoparametric formulation of multidimensional heat flow and elasticity; numerical integration. Practical use of FEM software; geometric and analytical modeling; preprocessing and postprocessing techniques; term projects with computers. Letter grading.

169A. Introduction to Mechanical Vibrations. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: courses 101, 102, 107. Fundamentals of vibration theory and applications. Free, forced, and transient vibration of one and two degrees of freedom systems, including damping. Normal modes, coupling, and normal coordinates. Vibration isolation devices, vibrations of continuous systems. Letter grading.

171A. Introduction to Feedback and Control Systems: Dynamic Systems Control I. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Enforced requisites: courses 107, 182A. Introduction to feedback principles, control systems design, and system stability. Modeling of physical systems in engineering and other fields; transform methods; controller design using Nyquist, Bode, and root locus methods; compensation; computer-aided analysis and design. Letter grading.

171B. Digital Control of Physical Systems. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: course 171A or Electrical Engineering 141. Analysis and design of digital control systems. Sampling theory. Z-transformation. Discrete-time system representation. Design using classical methods: performance specifications, root locus, frequency response, loop-shaping compensation. Design using state-space methods: state feedback, state estimator, state estimator feedback control. Simulation of sampled data systems and practical aspects: roundoff errors, sampling rate selection, computation delay. Letter grading.

172. Control System Design Laboratory. (4) Laboratory, eight hours; outside study, four hours. Requisite: course 171A. Application of frequency domain design techniques for control of mechanical systems. Successful controller design requires students to formulate performance measures for control problem, experimentally identify mechanical systems, and develop uncertainty descriptions for design models. Exploration of issues concerning model uncertainty and sensor/actuator placement. Students implement control designs on flexible structures, rate gyroscope, and inverted pendulum. Detailed reports required. Letter grading.

174. Probability and Its Applications to Risk, Reliability, and Quality Control. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: Mathematics 33A. Introduction to probability theory; random variables, distributions, functions of random variables, models of failure of components, reliability, redundancy, complex systems, stress-strength models, fault tree analysis, statistical quality control by variables and by attributes, acceptance sampling. Letter grading.

C175A. Probability and Stochastic Processes in Dynamical Systems. (4) Lecture, four hours; outside study, eight hours. Enforced requisites: courses 107, 182A. Probability spaces, random variables, stochastic sequences and processes, expectation, conditional expectation, Gauss/Markov sequences, and minimum variance estimator (Kalman filter) with applications. Concurrently scheduled with course C271A. Letter grading.

CM180. Introduction to Micromachining and Microelectromechanical Systems (MEMS). (4) (Same as Biomedical Engineering CM150 and Electrical Engineering CM150.) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: Chemistry 20A, 20L, Physics 1A, 1B, 1C, 4AL, 4BL. Corequisite: course CM180L. Introduction to micromachining technologies and microelectromechanical systems (MEMS). Methods of micromachining and how these methods can be used to produce variety of MEMS, including microstructures, microsensors, and microactuators. Students design microfabrication processes capable of achieving desired MEMS device. Concurrently scheduled with course CM280A. Letter grading.

CM180L. Introduction to Micromachining and Microelectromechanical Systems (MEMS) Laboratory. (2) (Same as Biomedical Engineering CM150L and Electrical Engineering CM150L.) Lecture, one hour; laboratory, four hours; outside study, one hour. Requisites: Chemistry 20A, 20L, Physics 1A, 1B, 1C, 4AL, 4BL. Corequisite: course CM180. Hands-on introduction to micromachining technologies and microelectromechanical systems (MEMS) laboratory. Methods of micromachining and how these methods can be used to produce variety of MEMS, including microstructures, microsensors, and microactuators. Students go through process of fabricating MEMS device. Concurrently scheduled with course CM280L. Letter grading.

181A. Complex Analysis and Integral Transforms. (4) Lecture, four hours; outside study, eight hours. Requisite: course 182A. Complex variables, analytic functions, conformal mapping, contour integrals, singularities, residues, Cauchy integrals; Laplace transform: properties, convolution, inversion; Fourier transform: properties, convolution, FFT, applications in dynamics, vibrations, structures, and heat conduction. Letter grading.

182A. Mathematics of Engineering. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: Mathematics 33A, 33B. Methods of solving ordinary differential equations in engineering. Review of matrix algebra. Solutions of systems of first- and second-order ordinary differential equations. Introduction to Laplace transforms and their application to ordinary differential equations. Introduction to boundary value problems. Nonlinear differential equations and stability. Letter grading.

182B. Mathematics of Engineering. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisite: course 182A. Analytical methods for solving partial differential equations arising in engi-

neering. Separation of variables, eigenvalue problems, Sturm/Liouville theory. Development and use of special functions. Representation by means of orthonormal functions; Galerkin method. Use of Green's function and transform methods. Letter grading.

182C. Numerical Methods for Engineering Applications. (4) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: course 182A, Computer Science 31. Recommended: Electrical Engineering 103. Basic topics from numerical analysis having wide application in solution of practical engineering problems, computer arithmetic, and errors. Solution of linear and nonlinear systems. Algebraic eigenvalue problem. Least-square methods, numerical quadrature, and finite difference approximations. Numerical solution of initial and boundary value problems for ordinary and partial differential equations. Letter grading.

183. Introduction to Manufacturing Processes. (4) Lecture, three hours; laboratory, four hours; outside study, five hours. Enforced requisite: Materials Science 104. Manufacturing fundamentals. Materials in manufacturing. Manufacturing systems. Rapid prototyping. Material removal processes. Solidification and forming. Joining and assembly. Particulate and surface processes. Electronics manufacturing. Letter grading.

184. Introduction to Geometry Modeling. (4) Lecture, four hours; laboratory, four hours; outside study, four hours. Requisites: course 94, Computer Science 31. Fundamentals in parametric curve and surface modeling, parametric spaces, blending functions, conics, splines and Bezier curve, coordinate transformations, algebraic and geometric form of surfaces, analytical properties of curve and surface, hands-on experience with CAD/CAM systems design and implementation. Letter grading.

185. Introduction to Radio Frequency Identification and Its Application in Manufacturing and Supply Chain. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: course 162B, Computer Science 31. Manufacturing today requires assembling of individual components into assembled products, shipping of such products, and eventually use, maintenance, and recycling of such products. Radio frequency identification (RFID) chips installed on components, subassemblies, and assemblies of products allow them to be tracked automatically as they move and transform through manufacturing supply chain. RFID tags have memory and small CPU that allows information about product status to be written, stored, and transmitted wirelessly. Tag data can then be forwarded by reader to enterprise software by way of RFID middleware layer. Study of how RFID is being utilized in manufacturing, with focus on automotive and aerospace. Letter grading.

C186. Applied Optics. (4) (Formerly numbered 186.) Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: Physics 1C. Fundamental principles of optical systems. Geometric optics and aberration theory. Diffraction and interference. Fourier optics, beam optics. Propagation of light, Snell's law, and Huygen's principle. Refraction and reflection. Plane waves, spherical waves, and image formation. Total internal reflection. Polarization, polarizers, and wave-plates. Lenses and aberrations, lens laws and formation of images, resolution and primary aberrations. Simple optical instruments, still cameras, shutters, apertures. Design of telescopes, microscope design, projection system design. Interference, Young's slit experiment and fringe visibility, Michelson interferometer, multiple-beam interference and thin film coatings. Diffraction theory, Fraunhofer and Fresnel diffraction, Fresnel zone plate. Fiber optics, waveguides and modes, fiber coupling, types of fiber: single and multimode. Concurrently scheduled with course C286. Letter grading.

C187L. Nanoscale Fabrication, Characterization, and Biodection Laboratory. (4) Lecture, two hours; laboratory, two hours; outside study, eight hours. Multidisciplinary course that introduces laboratory techniques of nanoscale fabrication, characterization, and biodection. Basic physical, chemical, and biological principles related to these techniques,

top-down and bottom-up (self-assembly) nanofabrication, nanocharacterization (AEM, SEM, etc.), and optical and electrochemical biosensors. Students encouraged to create their own ideas in self-designed experiments. Concurrently scheduled with course C287L. Letter grading.

188. Special Courses in Mechanical and Aerospace Engineering. (2 to 4) Lecture, two to four hours; outside study, four to eight hours. Special topics in mechanical and aerospace engineering for undergraduate students taught on experimental or temporary basis, such as those taught by resident and visiting faculty members. May be repeated once for credit with topic or instructor change. P/NP or letter grading.

194. Research Group Seminars: Mechanical and Aerospace Engineering. (2 to 4) Seminar, two hours. Designed for undergraduate students who are part of research group. Discussion of research methods and current literature in field. Student presentation of projects in research specialty. May be repeated for credit. P/NP or letter grading.

199. Directed Research in Mechanical and Aerospace Engineering. (2 to 8) Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit with school approval. Individual contract required; enrollment petitions available in Office of Academic and Student Affairs. Letter grading.

Graduate Courses

231A. Convective Heat Transfer Theory. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 131A, 182B. Recommended: course 250A. Conservation equations for flow of real fluids. Analysis of heat transfer in laminar and turbulent, incompressible and compressible flows. Internal and external flows; free convection. Variable wall temperature; effects of variable fluid properties. Analogies among convective transfer processes. Letter grading.

231B. Radiation Heat Transfer. (4) Lecture, four hours; outside study, eight hours. Requisite: course 105D. Radiative properties of materials and radiative energy transfer. Emphasis on fundamental concepts, including energy levels and electromagnetic waves as well as analytical methods for calculating radiative properties and radiation transfer in absorbing, emitting, and scattering media. Applications cover laser-material interactions in addition to traditional areas such as combustion and thermal insulation. Letter grading.

231C. Phase Change Heat Transfer and Two-Phase Flow. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 131A, 150A. Two-phase flow, boiling, and condensation. Generalized constitutive equations for two-phase flow. Phenomenological theories of boiling and condensation, including forced flow effects. Letter grading.

231G. Microscopic Energy Transport. (4) Lecture, four hours; outside study, eight hours. Requisite: course 105D. Heat carriers (photons, electrons, phonons, molecules) and their energy characteristics, statistical properties of heat carriers, scattering and propagation of heat carriers, Boltzmann transport equations, derivation of classical laws from Boltzmann transport equations, deviation from classical laws at small scale. Letter grading.

C232A. Mass Transfer. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 105D, 131A. Principles of mass transfer by diffusion and convection. Simultaneous heat and mass transfer. Transport in multicomponent systems. Thermal, forced, and pressure diffusion, Brownian diffusion. Analysis of evaporative and transpiration cooling, catalysis, and combustion. Mass exchangers, including automobile catalytic converters, electrostatic precipitators, filters, scrubbers, humidifiers, and cooling towers. Concurrently scheduled with course C132A. Letter grading.

235A. Nuclear Reactor Theory. (4) Lecture, four hours; outside study, eight hours. Requisite: course 182A. Underlying physics and mathematics of nuclear

reactor (fission) core design. Diffusion theory, reactor kinetics, slowing down and thermalization, multigroup methods, introduction to transport theory. Letter grading.

M237B. Fusion Plasma Physics and Analysis. (4) (Same as Electrical Engineering M287.) Lecture, four hours; outside study, eight hours. Requisite: Electrical Engineering M185. Fundamentals of plasmas at thermonuclear burning conditions. Fokker/Planck equation and applications to heating by neutral beams, RF, and fusion reaction products. Bremsstrahlung, synchrotron, and atomic radiation processes. Plasma surface interactions. Fluid description of burning plasma. Dynamics, stability, and control. Applications in tokamaks, tandem mirrors, and alternate concepts. Letter grading.

237D. Fusion Engineering and Design. (4) Lecture, four hours; outside study, eight hours. Fusion reactions and fuel cycles. Principles of inertial and magnetic fusion. Plasma requirements for controlled fusion. Plasma-surface interactions. Fusion reactor concepts and technological components. Analysis and design of high heat flux components, energy conversion and tritium breeding components, radiation shielding, magnets, and heating. Letter grading.

239B. Seminar: Current Topics in Transport Phenomena. (2 to 4) Seminar, two to four hours; outside study, four to eight hours. Designed for graduate mechanical and aerospace engineering students. Lectures, discussions, student presentations, and projects in areas of current interest in transport phenomena. May be repeated for credit. S/U grading.

239F. Special Topics in Transport Phenomena. (2 to 4) Lecture, two to four hours; outside study, four to eight hours. Designed for graduate mechanical and aerospace engineering students. Advanced and current study of one or more aspects of heat and mass transfer, such as turbulence, stability and transition, buoyancy effects, variational methods, and measurement techniques. May be repeated for credit with topic change. S/U grading.

239G. Special Topics in Nuclear Engineering. (2 to 4) Lecture, two to four hours; outside study, four to eight hours. Designed for graduate mechanical and aerospace engineering students. Advanced study in areas of current interest in nuclear engineering, such as reactor safety, risk-benefit trade-offs, nuclear materials, and reactor design. May be repeated for credit with topic change. S/U grading.

239H. Special Topics in Fusion Physics, Engineering, and Technology. (2 to 4) Seminar, two to four hours; outside study, four to eight hours. Designed for graduate mechanical and aerospace engineering students. Advanced treatment of subjects selected from research areas in fusion science and engineering, such as instabilities in burning plasmas, alternate fusion confinement concepts, inertial confinement fusion, fission-fusion hybrid systems, and fusion reactor safety. May be repeated for credit with topic change. S/U grading.

CM240. Introduction to Biomechanics. (4) (Same as Biomedical Engineering CM240.) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: courses 101, 102, 156A. Introduction to mechanical functions of human body; skeletal adaptations to optimize load transfer, mobility, and function. Dynamics and kinematics. Fluid mechanics applications. Heat and mass transfer. Power generation. Laboratory simulations and tests. Concurrently scheduled with course CM140. Letter grading.

250A. Foundations of Fluid Dynamics. (4) Lecture, four hours; outside study, eight hours. Requisite: course 150A. Corequisite: course 182B. Development and application of fundamental principles of fluid mechanics at graduate level, with emphasis on incompressible flow. Flow kinematics, basic equations, constitutive relations, exact solutions on the Navier/Stokes equations, vorticity dynamics, decomposition of flow fields, potential flow. Letter grading.

250B. Viscous and Turbulent Flows. (4) Lecture, four hours; outside study, eight hours. Requisite: course 150A. Fundamental principles of fluid dynamics applied to study of fluid resistance. States of fluid

motion discussed in order of advancing Reynolds number; wakes, boundary layers, instability, transition, and turbulent shear flows. Letter grading.

250C. Compressible Flows. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 150A, 150B. Effects of compressibility in viscous and inviscid flows. Steady and unsteady inviscid subsonic and supersonic flows; method of characteristics; small disturbance theories (linearized and hypersonic); shock dynamics. Letter grading.

250D. Computational Aerodynamics. (4) Lecture, eight hours. Requisites: courses 150A, 150B, 182C. Introduction to useful methods for computation of aerodynamic flow fields. Coverage of potential, Euler, and Navier/Stokes equations for subsonic to hypersonic speeds. Letter grading.

250E. Spectral Methods in Fluid Dynamics. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 182A, 182B, 182C, 250A, 250B. Introduction to basic concepts and techniques of various spectral methods applied to solving partial differential equations. Particular emphasis on techniques of solving unsteady three-dimensional Navier/Stokes equations. Topics include spectral representation of functions, discrete Fourier transform, etc. Letter grading.

250F. Hypersonic and High-Temperature Gas Dynamics. (4) Lecture, four hours; outside study, eight hours. Recommended requisite: course 250C. Molecular and chemical description of equilibrium and non-equilibrium hypersonic and high-temperature gas flows, chemical thermodynamics and statistical thermodynamics for calculation gas properties, equilibrium flows of real gases, vibrational and chemical rate processes, nonequilibrium flows of real gases, and computational fluid dynamics methods for nonequilibrium hypersonic flows. Letter grading.

C250G. Fluid Dynamics of Biological Systems. (4) Lecture, four hours; outside study, eight hours. Requisite: course 103. Mechanics of aquatic locomotion; insect and bird flight aerodynamics; pulsatile flow in circulatory system; rheology of blood; transport in microcirculation; role of fluid dynamics in arterial diseases. Concurrently scheduled with course C150G. Letter grading.

250M. Introduction to Microfluids/Nanofluids. (4) Lecture, four hours; outside study, eight hours. Requisite: course 150A. Introduction to fundamentals of microfluids. No-slip and slip boundary conditions. Sedimentation and diffusion in liquids. Osmotic pressure and Donnan equilibrium in fluid mixtures. Fundamentals of surface phenomena, spreading, and contact angles. Introduction to van der Waals interactions, electrical double layer, and zeta potential. Basics of non-Newtonian fluid mechanics. Letter grading.

252A. Stability of Fluid Motion. (4) Lecture, four hours; outside study, eight hours. Requisite: course 150A. Mechanisms by which laminar flows can become unstable and lead to turbulence of secondary motions. Linear stability theory; thermal, centrifugal, and shear instabilities; boundary layer instability. Non-linear aspects: sufficient criteria for stability, subcritical instabilities, supercritical states, transition to turbulence. Letter grading.

252B. Turbulence. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 250A, 250B. Characteristics of turbulent flows, conservation and transport equations, statistical description of turbulent flows, scales of turbulent motion, simple turbulent flows, free-shear flows, wall-bounded flows, turbulence modeling, numerical simulations of turbulent flows, and turbulence control. Letter grading.

252C. Fluid Mechanics of Combustion Systems. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 150A, 150B. Recommended: course 250C. Review of fluid mechanics and chemical thermodynamics applied to reactive systems, laminar diffusion flames, premixed laminar flames, stability, ignition, turbulent combustion, supersonic combustion. Letter grading.

252D. Combustion Rate Processes. (4) Lecture, four hours; outside study, eight hours. Requisite: course 252C. Basic concepts in chemical kinetics:

molecular collisions, distribution functions and averaging, semiempirical and ab initio potential surfaces, trajectory calculations, statistical reaction rate theories. Practical examples of large-scale chain mechanisms from combustion chemistry of several elements, etc. Letter grading.

253A. Advanced Engineering Acoustics. (4) Lecture, four hours; outside study, eight hours. Advanced studies in engineering acoustics, including three-dimensional wave propagation; propagation in bounded media; Ray acoustics; attenuation mechanisms in fluids. Letter grading.

253B. Fundamentals of Aeroacoustics. (4) Lecture, four hours; outside study, eight hours. Requisite: course 150A. Detailed discussion of plane waves, point sources. Nonlinearity, layered and moving media, multiple reflections. Inhomogeneous wave equation. Monopole, dipole, quadrupole source fields from scattering inhomogeneities and turbulence; Lighthill theory; moving sources. Similarity methods. Selected detailed applications. Letter grading.

254A. Special Topics in Aerodynamics. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 150A, 150B, 182A, 182B, 182C. Special topics of current interest in advanced aerodynamics. Examples include transonic flow, hypersonic flow, sonic booms, and unsteady aerodynamics. Letter grading.

255A. Advanced Dynamics. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 155, 169A. Variational principles and Lagrange equations. Kinematics and dynamics of rigid bodies; precession and nutation of spinning bodies. Letter grading.

255B. Mathematical Methods in Dynamics. (4) Lecture, four hours; outside study, eight hours. Requisite: course 255A. Concepts of stability; state-space interpretation; stability determination by simulation, linearization, and Lyapunov direct method; the Hamiltonian as a Lyapunov function; nonautonomous systems; averaging and perturbation methods of nonlinear analysis; parametric excitation and nonlinear resonance. Application to mechanical systems. Letter grading.

M256A. Linear Elasticity. (4) (Same as Civil Engineering M230A.) Lecture, four hours; outside study, eight hours. Requisite: course 156A or 166A. Linear elastostatics. Cartesian tensors; infinitesimal strain tensor; Cauchy stress tensor; strain energy; equilibrium equations; linear constitutive relations; plane elastostatic problems, holes, corners, inclusions, cracks; three-dimensional problems of Kelvin, Boussinesq, and Cerruti. Introduction to boundary integral equation method. Letter grading.

M256B. Nonlinear Elasticity. (4) (Same as Civil Engineering M230B.) Lecture, four hours; outside study, eight hours. Requisite: course M256A. Kinematics of deformation, material and spatial coordinates, deformation gradient tensor, nonlinear and linear strain tensors, strain displacement relations; balance laws, Cauchy and Piola stresses, Cauchy equations of motion, balance of energy, stored energy; constitutive relations, elasticity, hyperelasticity, thermoelasticity; linearization of field equations; solution of selected problems. Letter grading.

M256C. Plasticity. (4) (Same as Civil Engineering M230C.) Lecture, four hours; outside study, eight hours. Requisites: courses M256A, M256B. Classical rate-independent plasticity theory, yield functions, flow rules and thermodynamics. Classical rate-dependent viscoplasticity, Perzyna and Duvant/Lions types of viscoplasticity. Thermoelasticity and creep. Return mapping algorithms for plasticity and viscoplasticity. Finite element implementations. Letter grading.

256F. Analytical Fracture Mechanics. (4) Lecture, four hours; outside study, eight hours. Requisite: course M256A. Review of modern fracture mechanics, elementary stress analyses; analytical and numerical methods for calculation of crack tip stress intensity factors; engineering applications in stiffened structures, pressure vessels, plates, and shells. Letter grading.

M257A. Elastodynamics. (4) (Same as Earth and Space Sciences M224A.) Lecture, four hours; outside study, eight hours. Requisites: courses M256A, M256B. Equations of linear elasticity, Cauchy equa-

tion of motion, constitutive relations, boundary and initial conditions, principle of energy. Sources and waves in unbounded isotropic, anisotropic, and dissipative solids. Half-space problems. Guided waves in layered media. Applications to dynamic fracture, non-destructive evaluation (NDE), and mechanics of earthquakes. Letter grading.

258A. Nanomechanics and Micromechanics. (4) Lecture, four hours; outside study, eight hours. Requisite: course M256A. Analytical and computational modeling methods to describe mechanics of materials at scales ranging from atomistic through microstructure or transitional and up to continuum. Discussion of atomistic simulation methods (e.g., molecular dynamics, Langevin dynamics, and kinetic Monte Carlo) and their applications at nanoscale. Developments and applications of dislocation dynamics and statistical mechanics methods in areas of nanostructure and microstructure self-organization, heterogeneous plastic deformation, material instabilities, and failure phenomena. Presentation of technical applications of these emerging modeling techniques to surfaces and interfaces, grain boundaries, dislocations and defects, surface growth, quantum dots, nanotubes, nanoclusters, thin films (e.g., optical thermal barrier coatings and ultrastrong nanolayer materials), nano-identification, smart (active) materials, nanobending and microbending, and torsion. Letter grading.

259A. Seminar: Advanced Topics in Fluid Mechanics. (4) Seminar, four hours; outside study, eight hours. Advanced study of topics in fluid mechanics, with intensive student participation involving assignments in research problems leading to term paper or oral presentation (possible help from guest lecturers). Letter grading.

259B. Seminar: Advanced Topics in Solid Mechanics. (4) Seminar, four hours; outside study, eight hours. Advanced study in various fields of solid mechanics on topics which may vary from term to term. Topics include dynamics, elasticity, plasticity, and stability of solids. Letter grading.

260. Current Topics in Mechanical Engineering. (2 to 4) Seminar, two to four hours; outside study, four to eight hours. Designed for graduate mechanical and aerospace engineering students. Lectures, discussions, and student presentations and projects in areas of current interest in mechanical engineering. May be repeated for credit. S/U grading.

261A. Energy and Computational Methods in Structural Mechanics. (4) Lecture, four hours; outside study, eight hours. Requisite: course 156A or 166A. Review of theory of linear elasticity and reduced structural theories (rods, plates, and shells). Calculus of variations. Virtual work. Minimum and stationary variational principles. Variational approximation methods. Weighted residual methods, weak forms. Static finite element method. Isoparametric elements, beam and plate elements. Numerical quadrature. Letter grading.

261B. Computational Mechanics of Solids and Structures. (4) Lecture, four hours; outside study, eight hours. Requisite: course 261A. Variational formulation and computer implementation of linear elastic finite element method. Error analysis and convergence. Methods for large displacements, large deformations, and other geometric nonlinearities. Solution techniques for nonlinear equations. Finite element method for dynamics of solids and structures. Time integration algorithms. Term projects using digital computers. Letter grading.

262. Mechanics of Intelligent Material Systems. (4) Lecture, four hours; outside study, eight hours. Recommended requisite: course 166C. Constitutive relations for electro-magneto-mechanical materials. Fiber-optic sensor technology. Micro/macro analysis, including classical lamination theory, shear lag theory, concentric cylinder analysis, hexagonal models, and homogenization techniques as they apply to active materials. Active systems design, inch-worm, and bi-morph. Letter grading.

263A. Analytical Foundations of Motion Controllers. (4) Lecture, four hours; outside study, eight hours. Recommended requisites: courses 163A, 294. Theory of motion control for modern computer-controlled machines; multi-axis computer-controlled machines; machine kinematics and dynamics; multi-axis motion coordination; coordinated motion with desired speed and acceleration; jerk analysis; motion command generation; theory and design of controller interpolators; motion trajectory design and analysis; geometry-speed-sampling time relationships. Letter grading.

263B. Spacecraft Dynamics. (4) Lecture, four hours; outside study, eight hours. Requisite: course 255A. Recommended: course 255B. Modeling, dynamics, and stability of spacecraft; spinning and dual-spin spacecraft dynamics; spinup through resonance, spinning rocket dynamics; environmental torques in space, modeling and model reduction of flexible space structures. Letter grading.

263C. Mechanics and Trajectory Planning of Industrial Robots. (4) Lecture, four hours; outside study, eight hours. Requisite: course 163A. Theory and implementation of industrial robots. Design considerations. Kinematic structure modeling, trajectory planning, and system dynamics. Differential motion and static forces. Individual student study projects. Letter grading.

263D. Advanced Robotics. (4) Lecture, four hours; outside study, eight hours. Recommended preparation: courses 155, 171A, 263C. Motion planning and control of articulated dynamic systems: nonlinear joint control, experiments in joint control and multi-axis coordination, multibody dynamics, trajectory planning, motion optimization, dynamic performance and manipulator design, kinematic redundancies, motion planning of manipulators in space, obstacle avoidance. Letter grading.

M269A. Dynamics of Structures. (4) (Same as Civil Engineering M237A.) Lecture, four hours; outside study, eight hours. Requisite: course 169A. Principles of dynamics. Determination of normal modes and frequencies by differential and integral equation solutions. Transient and steady state response. Emphasis on derivation and solution of governing equations using matrix formulation. Letter grading.

269B. Advanced Dynamics of Structures. (4) Lecture, four hours; outside study, eight hours. Requisite: course M269A. Analysis of linear and nonlinear response of structures to dynamic loadings. Stresses and deflections in structures. Structural damping and self-induced vibrations. Letter grading.

269D. Aeroelastic Effects in Structures. (4) Lecture, four hours; outside study, eight hours. Requisite: course M269A. Presentation of field of aeroelasticity from unified viewpoint applicable to flight structures, suspension bridges, buildings, and other structures. Derivation of aeroelastic operators and unsteady airloads from governing variational principles. Flow induced instability and response of structural systems. Letter grading.

M270A. Linear Dynamic Systems. (4) (Same as Chemical Engineering M280A and Electrical Engineering M240A.) Lecture, four hours; outside study, eight hours. Requisite: course 171A or Electrical Engineering 141. State-space description of linear time-invariant (LTI) and time-varying (LTV) systems in continuous and discrete time. Linear algebra concepts such as eigenvalues and eigenvectors, singular values, Cayley/Hamilton theorem, Jordan form; solution of state equations; stability, controllability, observability, realizability, and minimality. Stabilization design via state feedback and observers; separation principle. Connections with transfer function techniques. Letter grading.

270B. Linear Optimal Control. (4) Lecture, four hours; outside study, eight hours. Requisite: course M270A or Electrical Engineering M240A. Existence and uniqueness of solutions to linear quadratic (LQ) optimal control problems for continuous-time and discrete-time systems, finite-time and infinite-time problems; Hamiltonian systems and optimal control; algebraic and differential Riccati equations; implications of controllability, stabilizability, observability, and detectability solutions. Letter grading.

M270C. Optimal Control. (4) (Same as Chemical Engineering M280C and Electrical Engineering M240C.) Lecture, four hours; outside study, eight hours. Requisite: course 270B. Applications of variational methods, Pontryagin maximum principle, Hamilton/Jacobi/Bellman equation (dynamic programming) to optimal control of dynamic systems modeled by nonlinear ordinary differential equations. Letter grading.

C271A. Probability and Stochastic Processes in Dynamical Systems. (4) (Formerly numbered 271A.) Lecture, four hours; outside study, eight hours. Enforced requisites: courses 107, 182A. Probability spaces, random variables, stochastic sequences and processes, expectation, conditional expectation, Gauss/Markov sequences, and minimum variance estimator (Kalman filter) with applications. Concurrently scheduled with course C175A. Letter grading.

271B. Stochastic Estimation. (4) Lecture, four hours; outside study, eight hours. Requisite: course 271A. Linear and nonlinear estimation theory, orthogonal projection lemma, Bayesian filtering theory, conditional mean and risk estimators. Letter grading.

271C. Stochastic Optimal Control. (4) Lecture, four hours; outside study, eight hours. Requisite: course 271B. Stochastic dynamic programming, certainty equivalence principle, separation theorem, information statistics; linear-quadratic-Gaussian problem, linear-exponential-Gaussian problem. Relationship between stochastic control and robust control. Letter grading.

271D. Seminar: Special Topics in Dynamic Systems Control. (4) Seminar, four hours; outside study, eight hours. Seminar on current research topics in dynamic systems modeling, control, and applications. Topics selected from process control, differential games, nonlinear estimation, adaptive filtering, industrial and aerospace applications, etc. Letter grading.

M272A. Nonlinear Dynamic Systems. (4) (Same as Chemical Engineering M282A and Electrical Engineering M242A.) Lecture, four hours; outside study, eight hours. Requisite: course M270A or Chemical Engineering M280A or Electrical Engineering M240A. State-space techniques for studying solutions of time-invariant and time-varying nonlinear dynamic systems with emphasis on stability. Lyapunov theory (including converse theorems), invariance, center manifold theorem, input-to-state stability and small-gain theorem. Letter grading.

273A. Robust Control System Analysis and Design. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 171A, M270A. Graduate-level introduction to analysis and design of multivariable control systems. Multivariable loop-shaping, performance requirements, model uncertainty representations, and robustness covered in detail from frequency domain perspective. Structured singular value and its application to controller synthesis. Letter grading.

275A. System Identification. (4) Lecture, four hours; outside study, eight hours. Methods for identification of dynamical systems from input/output data, with emphasis on identification of discrete-time (digital) models of sampled-data systems. Coverage of conversion to continuous-time models. Models identified include transfer functions and state-space models. Discussion of applications in mechanical and aerospace engineering, including identification of flexible structures, microelectromechanical systems (MEMS) devices, and acoustic ducts. Letter grading.

M276. Dynamic Programming. (4) (Same as Electrical Engineering M237.) Lecture, four hours; outside study, eight hours. Recommended requisite: Electrical Engineering 232A or 236A or 236B. Introduction to mathematical analysis of sequential decision processes. Finite horizon model in both deterministic and stochastic cases. Finite-state infinite horizon model. Methods of solution. Examples from inventory theory, finance, optimal control and estimation, Markov decision processes, combinatorial optimization, communications. Letter grading.

277. Advanced Digital Control for Mechatronic Systems. (4) Lecture, four hours; laboratory, two hours; outside study, six hours. Requisites: courses 171B, M270A. Digital signal processing and control analysis of mechatronic systems. System inversion-

based digital control algorithms and robustness properties, Youla parameterization of stabilizing controllers, previewed optimal feedforward compensator, repetitive and learning control, and adaptive control. Real-time control investigation of topics to selected mechatronic systems. Letter grading.

CM280A. Introduction to Micromachining and Microelectromechanical Systems (MEMS). (4) (Same as Biomedical Engineering CM250A and Electrical Engineering CM250A.) Lecture, four hours; discussion, one hour; outside study, seven hours. Requisites: Chemistry 20A, 20L, Physics 1A, 1B, 1C, 4AL, 4BL. Corequisite: course CM280L. Introduction to micromachining technologies and microelectromechanical systems (MEMS). Methods of micromachining and how these methods can be used to produce variety of MEMS, including microstructures, microsensors, and microactuators. Students design microfabrication processes capable of achieving desired MEMS device. Concurrently scheduled with course CM180. Letter grading.

M280B. Microelectromechanical Systems (MEMS) Fabrication. (4) (Same as Biomedical Engineering M250B and Electrical Engineering M250B.) Lecture, three hours; discussion, one hour; outside study, eight hours. Enforced requisite: course CM180 or CM280A. Advanced discussion of micromachining processes used to construct MEMS. Coverage of many lithographic, deposition, and etching processes, as well as their combination in process integration. Materials issues such as chemical resistance, corrosion, mechanical properties, and residual/intrinsic stress. Letter grading.

CM280L. Introduction to Micromachining and Microelectromechanical Systems (MEMS) Laboratory. (2) (Same as Biomedical Engineering CM250L and Electrical Engineering CM250L.) Lecture, one hour; laboratory, four hours; outside study, one hour. Requisites: Chemistry 20A, 20L, Physics 1A, 1B, 1C, 4AL, 4BL. Corequisite: course CM280A. Hands-on introduction to micromachining technologies and microelectromechanical systems (MEMS) laboratory. Methods of micromachining and how these methods can be used to produce variety of MEMS, including microstructures, microsensors, and microactuators. Students go through process of fabricating MEMS device. Concurrently scheduled with course CM180L. Letter grading.

281. Microsciences. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 131A, 150A. Basic science issues in micro domain. Topics include micro fluid science, microscale heat transfer, mechanical behavior of microstructures, as well as dynamics and control of micro devices. Letter grading.

M282. Microelectromechanical Systems (MEMS) Device Physics and Design. (4) (Same as Biomedical Engineering M252 and Electrical Engineering M252.) Lecture, four hours; outside study, eight hours. Introduction to MEMS design. Design methods, design rules, sensing and actuation mechanisms, microsensors, and microactuators. Designing MEMS to be produced with both foundry and nonfoundry processes. Computer-aided design for MEMS. Design project required. Letter grading.

283. Experimental Mechanics for Microelectromechanical Systems (MEMS). (4) Lecture, four hours; outside study, eight hours. Methods, techniques, and philosophies being used to characterize microelectromechanical systems for engineering applications. Material characterization, mechanical/material properties, mechanical characterization. Topics include fundamentals of crystallography, anisotropic material properties, and mechanical behavior (e.g., strength/fracture/fatigue) as they relate to microscale. Considerable emphasis on emerging experimental approaches to assess design-relevant mechanical properties. Letter grading.

284. Sensors, Actuators, and Signal Processing. (4) Lecture, four hours; outside study, eight hours. Principles and performance of micro transducers. Applications of using unique properties of micro trans-

ducers for distributed and real-time control of engineering problems. Associated signal processing requirements for these applications. Letter grading.

285. Interfacial Phenomena. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 103, 105A, 105D, 182A. Introduction to fundamental physical phenomena occurring at interfaces and application of their knowledge to engineering problems. Fundamental concepts of interfacial phenomena, including surface tension, surfactants, interfacial thermodynamics, interfacial forces, interfacial hydrodynamics, and dynamics of triple line. Presentation of various applications, including wetting, change of phase (boiling and condensation), forms and emulsions, microelectromechanical systems, and biological systems. Letter grading.

C286. Applied Optics. (4) Lecture, four hours; discussion, two hours; outside study, six hours. Requisite: Physics 1C. Fundamental principles of optical systems. Geometric optics and aberration theory. Diffraction and interference. Fourier optics, beam optics. Propagation of light, Snell's law, and Huygen's principle. Refraction and reflection. Plane waves, spherical waves, and image formation. Total internal reflection. Polarization, polarizers, and wave-plates. Lenses and aberrations, lens laws and formation of images, resolution and primary aberrations. Simple optical instruments, still cameras, shutters, apertures. Design of telescopes, microscope design, projection system design. Interference, Young's slit experiment and fringe visibility, Michelson interferometer, multiple-beam interference and thin film coatings. Diffraction theory, Fraunhofer and Fresnel diffraction, Fresnel zone plate. Fiber optics, waveguides and modes, fiber coupling, types of fiber: single and multimode. Concurrently scheduled with course C186. Letter grading.

M287. Nanoscience and Technology. (4) (Same as Electrical Engineering M257.) Lecture, four hours; outside study, eight hours. Introduction to fundamentals of nanoscale science and technology. Basic physical principles, quantum mechanics, chemical bonding and nanostructures, top-down and bottom-up (self-assembly) nanofabrication; nanocharacterization; nanomaterials, nanoelectronics, and nanobiosensing technology. Introduction to new knowledge and techniques in nano areas to understand scientific principles behind nanotechnology and inspire students to create new ideas in multidisciplinary nano areas. Letter grading.

C287L. Nanoscale Fabrication, Characterization, and Biodection Laboratory. (4) Lecture, two hours; laboratory, two hours; outside study, eight hours. Multidisciplinary course that introduces laboratory techniques of nanoscale fabrication, characterization, and biodection. Basic physical, chemical, and biological principles related to these techniques, top-down and bottom-up (self-assembly) nanofabrication, nanocharacterization (AEM, SEM, etc.), and optical and electrochemical biosensors. Students encouraged to create their own ideas in self-designed experiments. Concurrently scheduled with course C187L. Letter grading.

288. Laser Microfabrication. (4) Lecture, four hours; outside study, eight hours. Requisites: Materials Science 104, Physics 17. Science and engineering of laser microscopic fabrication of advanced materials, including semiconductors, metals, and insulators. Topics include fundamentals in laser interactions with advanced materials, transport issues (therma, mass, chemical, carrier, etc.) in laser microfabrication, state-of-art optics and instrumentation for laser microfabrication, applications such as rapid prototyping, surface modifications (physical/chemical), micromachines for three-dimensional MEMS (microelectromechanical systems) and data storage, up-to-date research activities. Student term projects. Letter grading.

293. Quality Engineering in Design and Manufacturing. (4) Lecture, four hours; outside study, eight hours. Requisite: course 174. Quality engineering concepts and approaches. Taguchi methods of robust technology development and off-line control. Quality loss function, signal-to-noise ratio, and orthogonal arrays. Parametric design of products and production

processes. Tolerance design. Online quality control systems. Decision making in quality engineering. Letter grading.

294. Computational Geometry for Design and Manufacturing. (4) Lecture, four hours; outside study, eight hours. Requisite: course 184. Computational geometry for design and manufacturing, with special emphasis on curve and surface theory, geometric modeling of curves and surfaces, B-splines and NURBS, composite curves and surfaces, computing methods for surface design and manufacture, and current research topics in computational geometry for CAD/CAM systems. Letter grading.

295A. Computer-Aided Manufacturing. (4) Lecture, four hours; outside study, eight hours. Preparation: course 163A or 185. Requisite: course 94. Concepts, methods, and elements of computer-aided manufacturing. Planning and control of manufacturing systems. Group technology and computer-aided process planning. Design and modeling of flexible manufacturing systems. Computer-aided manufacturing. Letter grading.

295B. Internet-Based Collaborative Design. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 94, 184. Exploration of advanced state-of-the-art concepts in Internet-based collaborative design, including software environments to connect designers over Internet, networked variable media graphics environments such as high-end virtual reality systems, mid-range graphics, and low-end mobile device-based systems, and multifunctional design collaboration and software tools to support it. Letter grading.

295C. Radio Frequency Identification Systems: Analysis, Design, and Applications. (4) Lecture, four hours; outside study, eight hours. Designed for graduate engineering students. Examination of emerging discipline of radio frequency identification (RFID), including basics of RFID, how RFID systems function, design and analysis of RFID systems, and applications to fields such as supply chain, manufacturing, retail, and homeland security. Letter grading.

296A. Damage and Failure of Materials in Mechanical Design. (4) Lecture, four hours; outside study, eight hours. Requisites: course 156A, Materials Science 143A. Role of failure prevention in mechanical design and case studies. Mechanics and physics of material imperfections: voids, dislocations, cracks, and inclusions. Statistical and deterministic design methods. Plastic, fatigue, and creep damage. Letter grading.

296B. Thermochemical Processing of Materials. (4) Lecture, four hours; outside study, eight hours. Requisites: courses 131A, 183. Thermodynamics, heat and mass transfer, principles of material processing: phase equilibria and transitions, transport mechanisms of heat and mass, moving interfaces and heat sources, natural convection, nucleation and growth of microstructure, etc. Applications with chemical vapor deposition, infiltration, etc. Letter grading.

297. Composites Manufacturing. (4) Lecture, four hours; outside study, eight hours. Requisites: course 166C, Materials Science 151. Matrix materials, fibers, fiber preforms, elements of processing, autoclave/compression molding, filament winding, pultrusion, resin transfer molding, automation, material removal and assembly, metal and ceramic matrix composites, quality assurance. Letter grading.

298. Seminar: Engineering. (2 to 4) Seminar, to be arranged. Limited to graduate mechanical and aerospace engineering students. Seminars may be organized in advanced technical fields. If appropriate, field trips may be arranged. May be repeated with topic change. Letter grading.

M299A. Seminar: Systems, Dynamics, and Control Topics. (2) (Same as Chemical Engineering M297 and Electrical Engineering M248S.) Seminar, two hours; outside study, six hours. Limited to graduate engineering students. Presentations of research topics by leading academic researchers from fields of systems, dynamics, and control. Students who work in these fields present their papers and results. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Teaching Assistant Training Seminar. (2) Seminar, two hours; outside study, four hours. Preparation: appointment as teaching assistant in department. Seminar on communication of mechanical and aerospace engineering principles, concepts, and methods; teaching assistant preparation, organization, and presentation of material, including use of visual aids; grading, advising, and rapport with students. S/U grading.

596. Directed Individual or Tutorial Studies. (2 to 8) Tutorial, to be arranged. Limited to graduate mechanical and aerospace engineering students. Petition forms to request enrollment may be obtained from assistant dean, Graduate Studies. Supervised investigation of advanced technical problems. S/U grading.

597A. Preparation for M.S. Comprehensive Examination. (2 to 12) Tutorial, to be arranged. Limited to graduate mechanical and aerospace engineering students. Reading and preparation for M.S. comprehensive examination. S/U grading.

597B. Preparation for Ph.D. Preliminary Examinations. (2 to 16) Tutorial, to be arranged. Limited to graduate mechanical and aerospace engineering students. S/U grading.

597C. Preparation for Ph.D. Oral Qualifying Examination. (2 to 16) Tutorial, to be arranged. Limited to graduate mechanical and aerospace engineering students. Preparation for oral qualifying examination, including preliminary research on dissertation. S/U grading.

598. Research for and Preparation of M.S. Thesis. (2 to 12) Tutorial, to be arranged. Limited to graduate mechanical and aerospace engineering students. Supervised independent research for M.S. candidates, including thesis prospectus. S/U grading.

599. Research for and Preparation of Ph.D. Dissertation. (2 to 16) Tutorial, to be arranged. Limited to graduate mechanical and aerospace engineering students. Usually taken after students have been advanced to candidacy. S/U grading.

MEDICINE

David Geffen School of Medicine

UCLA
37-120 Center for the Health Sciences
Box 951736
Los Angeles, CA 90095-1736
(310) 825-6275
<http://www.med.ucla.edu>

Chairs

Alan M. Fogelman, M.D. (*William S. Adams Professor of Medicine and Castera Professor of Cardiology*),
Executive Chair
Jan H. Tillsch, M.D., *Executive Vice Chair*
Mary C. Territo, M.D., *Executive Vice Chair, Academic Affairs*
Robert K. Oye, M.D., *Executive Vice Chair, Clinical Services*
Dennis J. Slamon, M.D. (*Bowyer Professor of Medical Oncology*), *Executive Vice Chair, Research*

Scope and Objectives

The principal goal of the Department of Medicine is to educate students in the expert diagnosis and compassionate management of human illness. Building on the biochemical, physiological, and behavioral foundations of the

preclinical experience, students are taught *information acquisition* through history taking, physical examination, and laboratory evaluation; *information synthesis* through achieving a differential diagnosis and evaluative plan; and *medical decision making* for continued evaluation and therapy. Students are encouraged and guided in developing a caring physician/patient relationship.

Instruction in the department is provided in all four years of medical school, with the third and fourth years constituting a continuum of clinical experience. Students become integrated into a ward team and have significant ambulatory care experiences. They apply and extend their clinical skills, medical knowledge, and judgment in the care of patients assigned to them under the immediate supervision of house officers and attending staff.

The department offers a broad range of advanced clinical clerkships in general and subspecialty ambulatory and hospital-based internal medicine at all the major affiliated centers.

For further details on the Department of Medicine and a listing of the courses offered, see <http://www.medstudent.ucla.edu>.

Medicine

Upper Division Courses

M160A. Health Outreach and Education for At-Risk Populations. (4) (Same as Public Health M160A.) Lecture, four hours; possible field observations. First in series of courses to explore prevention of disease in at-risk populations, clinical services and referrals for disadvantaged, and effects of low socioeconomic status on academic achievement, career, and family. Lectures by faculty and practitioners, with field visits. P/NP or letter grading.

M160B. Health Outreach and Education for At-Risk Populations. (4) (Same as Public Health M160B.) Lecture, two hours; discussion, two hours. Requisite: course M160A. Second in series of courses to explore prevention of disease in at-risk populations, clinical services and referrals for disadvantaged, and effects of low socioeconomic status on academic achievement, career, and family. Lectures by faculty and practitioners, discussion groups, and field activities including health education. P/NP or letter grading.

160C. Health Outreach and Education to At-Risk Populations. (4) (Formerly numbered 190C.) Seminar, two hours; fieldwork, six to eight hours. Requisites: courses M160A, M160B. Processes involved with designing, delivering, and assessing community health education programs, under supervision of professional staff. P/NP or letter grading.

180. Special Topics in Medicine. (4) Lecture, four hours; discussion, one hour. Medical topics of special interest to undergraduate students. Specific subjects may vary each term depending on particular interest of instructors and students. Topics may include East/West medicine and global medicine. May be repeated for credit with topic or instructor change. P/NP or letter grading.

199. Directed Research in Medicine. (2 to 8) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

M215. Interdepartmental Course: Tropical Medicine. (2) (Same as Pathology M215 and Pediatrics M215.) Lecture, two and one-half hours. Preparation: basic courses in microbiology and parasitology of infectious diseases in School of Medicine or Public Health. Study of current knowledge about diseases prevalent in tropical areas of the world. Major emphasis on infectious diseases, with coverage of problems in nutrition and exotic noninfectious diseases. Syllabus supplements topics covered in classroom. S/U grading.

M256. Interdisciplinary Response to Infectious Disease Emergencies: Medicine Perspective. (4) Lecture, three hours; discussion, one hour. Designed to instill in professional students ideas of common emergency health problems and coordinated response, with specific attention to bioterrorism. Examination of tools to help students prevent, detect, and intervene in infectious disease emergencies. Interdisciplinary sessions also attended by students in Schools of Dentistry, Nursing, and Public Health during weeks two through five. Letter grading.

M260A-M260B. Methodology in Clinical Research I, II. (4-4) (Same as Biomathematics M260A-M260B.) Lecture, four hours. Recommended preparation: M.D., Ph.D., or dental degree. Requisites: Biomathematics 170A, 265A. Course M260A is requisite to M260B. Presentation of principles and practices of major disciplines underlying clinical research methodology, such as biostatistics, epidemiology, pharmacokinetics. S/U or letter grading.

M260C. Methodology in Clinical Research III. (4) (Same as Biomathematics M260C.) Discussion, four hours. Recommended preparation: M.D., Ph.D., or dental degree. Presentation of principles and practices of major disciplines underlying clinical research methodology, such as biostatistics, epidemiology, pharmacokinetics. S/U or letter grading.

M261. Ethics in Patient-Oriented Research. (2) (Same as Biomathematics M261.) Lecture, two hours; discussion, two hours. Discussion of current issues in responsible conduct of clinical research, including reporting of research, basis for authorship, issues in genetic research, principles and practice of research on humans, conflicts of interest, Institutional Review Board (IRB), and related topics. S/U or letter grading.

M263. Clinical Pharmacology. (2) (Same as Biomathematics M263 and Psychiatry M263.) Lecture, two hours. Preparation: completion of professional health sciences degree (M.D., D.D.S., D.N.Sc., or Ph.D.). Overview of principles of clinical pharmacology, especially as they relate to clinical and translational medicine and to advances in contemporary medicine such as targeting, gene therapy, and genomics. Letter grading.

M270C. Advanced Modeling Methodology for Dynamic Biomedical Systems. (4) (Same as Biomedical Engineering M296A and Computer Science M296A.) Lecture, four hours; outside study, eight hours. Requisite: Electrical Engineering 141 or 142 or Mathematics 115A or Mechanical and Aerospace Engineering 171A. Development of dynamic systems modeling methodology for physiological, biomedical, pharmacological, chemical, and related systems. Control system, multicompartmental, noncompartmental, and input/output models, linear and nonlinear. Emphasis on model applications, limitations, and relevance in biomedical sciences and other limited data environments. Problem solving in PC laboratory. Letter grading.

M270D. Optimal Parameter Estimation and Experiment Design for Biomedical Systems. (4) (Same as Biomathematics M270, Biomedical Engineering M296B, and Computer Science M296B.) Lecture, four hours; outside study, eight hours. Requisite: course M270C or Biomathematics 220. Estimation methodology and model parameter estimation algorithms for fitting dynamic system models to biomedical data. Model discrimination methods. Theory and algorithms for designing optimal experiments for developing and quantifying models, with special focus on optimal sampling schedule design for kinetic models. Explora-

tion of PC software for model building and optimal experiment design via applications in physiology and pharmacology. Letter grading.

M270E. Advanced Topics and Research in Biomedical Systems Modeling and Computing. (4) (Same as Biomedical Engineering M296C and Computer Science M296C.) Lecture, four hours; outside study, eight hours. Requisite: course M270C. Recommended: course M270D. Research techniques and experience on special topics involving models, modeling methods, and model/computing in biological and medical sciences. Review and critique of literature. Research problem searching and formulation. Approaches to solutions. Individual M.S.- and Ph.D.-level project training. Letter grading.

M290A-M290B. Child Abuse and Neglect. (2-2) (Same as Community Health Sciences M245A-M245B-M245C, Dentistry M300A-M300B-M300C, Education M217G-M217H-M217I, Law M281A-M281B, Nursing M290A-M290B-M290C, and Social Welfare M203F-M203G-M203H.) Lecture, two hours. Course M290A is requisite to M290B. Intensive interdisciplinary study of child physical and sexual abuse and neglect, with lectures by faculty members of Schools of Dentistry, Law, Medicine, Nursing, and Public Health and Departments of Education and Psychology, as well as by relevant public agencies. Letter grading.

MICROBIOLOGY, IMMUNOLOGY, AND MOLECULAR GENETICS

College of Letters and Science and David Geffen School of Medicine

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Jeffery F. Miller, Ph.D., *Chair*

Professors

Arnold J. Berk, M.D. (*Presidential Professor of Molecular Cell Biology*)
Douglas L. Black, Ph.D.
Benjamin Bonavida, Ph.D.
David A. Campbell, Ph.D.
Irvin S.Y. Chen, Ph.D.
Genhong Cheng, Ph.D.
Asim Dasgupta, Ph.D.
James S. Economou, M.D., Ph.D.
Lawrence T. Feldman, Ph.D.
Robert P. Gunsalus, Ph.D.
Marcus Horwitz, M.D.
Patricia J. Johnson, Ph.D.
H. Ronald Kaback, M.D.
Donald B. Kohn, M.D.
Aldons J. Lusis, Ph.D.
Otoniel Martinez-Maza, Ph.D.
M. Carrie Miceli, Ph.D.
Jeffery F. Miller, Ph.D. (*M. Philip Davis Professor of Microbiology and Immunology*)
Jeffrey H. Miller, Ph.D.
Robert L. Modlin, M.D.
Sherie L. Morrison, Ph.D.
Wenyuan Shi, Ph.D.
Larry Simpson, Ph.D.
Stephen T. Smale, Ph.D.
Karl O. Stetter, Ph.D.
Fuyuhiko Tamanoi, Ph.D.
Christel H. Uittenbogaart, M.D., *in Residence*

Bernadine J. Wisniewski, Ph.D.
 Owen N. Witte, M.D. (*President's Professor of
 Developmental Immunology*)
 Otto O. Yang, M.D.
 Jerome Zack, Ph.D.
 Z. Hong Zhou, Ph.D.

Professors Emeriti

Frederick A. Eiserling, Ph.D.
 Sydney M. Finegold, M.D.
 C. Fred Fox, Ph.D.
 Rafael J. Martinez, Ph.D.
 James N. Miller, Ph.D.
 Debi P. Nayak, B.V.Sc., Ph.D.
 Donald P. Nierlich, Ph.D.
 Dan S. Ray, Ph.D.
 Ronald H. Stevens, Ph.D.
 Randolph Wall, Ph.D.
 Felix O. Wettstein, Ph.D.

Associate Professors

Kenneth A. Bradley, Ph.D.
 Kent L. Hill, Ph.D.
 Beth A. Lazazzera, Ph.D.
 Benhur Lee, M.D.

Assistant Professors

Peter J. Bradley, Ph.D.
 David G. Brooks, Ph.D. (*Johanna F. and Joseph H.
 Shaper Family Professor of Microbiology*)
 Hanna K.A. Mikkola, M.D., Ph.D.
 Manuel Penichet, M.D., Ph.D.
 April D. Pyle, Ph.D.

Adjunct Associate Professor

Imke Schroeder, Ph.D.

Scope and Objectives

Microbiology at UCLA is a diverse science that includes bacteriology, virology, immunology, genetics, molecular biology, and the study of single cells. The science has its roots in the fundamental human needs of health, nutrition, and environmental control, and it provides opportunities for study in the basic biological fields of genetics and cellular and molecular biology.

Undergraduate students majoring in Microbiology, Immunology, and Molecular Genetics prepare for careers in biomedical research, medicine, dentistry, or other health professions, biotechnology and genetic engineering, industrial microbiology, agricultural or environmental sciences, public health, and law or bioethics, among others. The courses presented by the department lead to a Bachelor of Science degree and depend heavily on preparation in the biological sciences, chemistry, physics, and mathematics.

The graduate program emphasizes the areas of molecular genetics, cell biology, immunology, cell and virus structure and morphogenesis, animal virology, general bacteriology and physiology, host/parasite relationships, medical microbiology, microbial genetics, microbial pathogenesis, and recombinant DNA research. Students are prepared for creative research careers in all of these fields. The objective of the department is to provide breadth in microbiology, immunology, and molecular genetics at the undergraduate level and depth and training in independent study and research for graduate students.

Undergraduate Study

Microbiology, Immunology, and Molecular Genetics B.S.

Microbiology, Immunology, and Molecular Genetics Premajor

While students are completing the preparation courses for the major, they are classified as Microbiology, Immunology, and Molecular Genetics premajors.

Preparation for the Major

Life Sciences Core Curriculum

Required: Life Sciences 1, 2, 3, 4; Chemistry and Biochemistry 14A, 14B, 14BL, 14C, 14CL, and 14D, or 20A, 20B, 20L, 30A, 30AL, 30B, and 30BL; Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A; Physics 1A, 1B, 1C, 4AL, and 4BL, or 6A, 6B, and 6C.

Each core curriculum course must be passed with a grade of C– or better, and all courses must be completed with an overall grade-point average of 2.0 or better. Students receiving a grade of D or F in two core curriculum courses, either in separate courses or repetitions of the same course, are subject to dismissal from the major.

Transfer Students

Transfer applicants to the Microbiology, Immunology, and Molecular Genetics major with 90 or more units must complete the following introductory courses prior to admission to UCLA: one year of general biology with laboratory for majors, preferably equivalent to Life Sciences 1 and 2, one year of calculus, one year of general chemistry with laboratory for majors, and one semester of organic chemistry with laboratory. A second semester of organic chemistry or one year of calculus-based physics is strongly recommended but not required for admission.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

Students intending to major in Microbiology, Immunology, and Molecular Genetics may seek counseling and petition to enter the major in the Student Affairs Office, 1602B Molecular Sciences.

The Major

Required: Four foundation courses (Chemistry and Biochemistry 153A, Microbiology, Immunology, and Molecular Genetics 101, 103L, 185A); five focus elective courses selected from Chemistry and Biochemistry 153L, Microbiology, Immunology, and Molecular Genetics 102, 106, 107, 123, 132, CM156, 168, 198C, 199B, Molecular, Cell, and Developmental Biology 138, 165A; and at least 8 units of general elective courses selected from Biostatistics 100A, Chemistry and Biochemistry 103, 110A, 136, C140, 153B, 153C, 156, CM160A, C161A, 171, 172, C179, C181, Ecology and Evolutionary Biology 121, 135, 137, 162, Epidemiology 100, Human Genetics C144, Life

Sciences 100HA, Molecular, Cell, and Developmental Biology 100, 138, M140, C141, 143, 144, 165A, 168, 172, 187A, Neuroscience M101A, M101B, M101C.

Each major course must be taken for a letter grade of C– or better, and students must have a minimum overall grade-point average of 2.0 or better in the major.

Honors Program

Overall grade-point averages of 3.2 and 3.5 in the preparation for the major and major respectively are required to apply for departmental honors. In addition students must have junior standing and the sponsorship of a faculty adviser from the department. The core of the program consists of Microbiology, Immunology, and Molecular Genetics 198A, 198B, and 198C research, culminating in a thesis. If the thesis is accepted by the honors committee and students complete all major requirements with a GPA of at least 3.5, they are awarded the bachelor's degree with departmental honors. The department also offers an honors seminar course each Winter Quarter that is required for the honors program. For further information, contact the Student Affairs Office, 1602B Molecular Sciences.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Microbiology, Immunology, and Molecular Genetics offers Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Microbiology, Immunology, and Molecular Genetics.

Microbiology, Immunology, and Molecular Genetics

Lower Division Courses

5. Science of Memory and Learning. (4) Lecture, seven hours. Nature of intelligence, overview of brain structure, study of memory systems, including memory retrieval, context of memories with emotion, sleep, and memory. Survey of metacognition and performance of learning. Offered in summer only. P/NP or letter grading.

6. Microbiology for Nonmajors. (4) Lecture, four hours. Not open for credit to students with credit for course 101 or Life Sciences 2. Designed for non-science students; introduction to biology of microorganisms (bacteria, viruses, protozoa, algae, fungi), their significance as model systems for understanding fundamental cellular processes, and their role in human affairs. P/NP or letter grading.

7. Developments in Biotechnology. (4) Lecture, three hours; demonstration/laboratory, one hour. Recommended preparation: course 6 or Life Sciences 2.

Not open for credit to students with credit for course 101 or Life Sciences 3. Survey of recent developments in biotechnology, with emphasis on use of single-celled organisms. Review of basic principles of microbiology as they apply to biotechnology and examination of wide variety of topics, including alternate energy sources, pollution, cleanup, genetic fingerprinting, genetic engineering, and agricultural and food microbiology. P/NP or letter grading.

10. Medical Microbiology for Nursing Students. (4) Lecture, three hours; discussion, one hour. Requisite: Mathematics 3A or 31A. Limited to Nursing majors. Introduction to biology of microbial pathogens, their role in development of human immune response, and presentation of symptoms and disease caused by microbial infections. Letter grading.

12. Biological Threats to Society: Bioterrorism and Emerging Infections. (4) Lecture, four hours. Examination of biological threats to American society. Coverage of biological weapons going back to first attempts to use microbes or toxins as weapons, and of emerging infections. Introduction to basic biology to understand infectious disease. P/NP or letter grading.

Upper Division Courses

100L. Microbiology Laboratory for Professional Schools. (3) Lecture, 75 minutes; laboratory, three hours. Requisites: Life Sciences 3, 4, with grades of C or better. Recommended corequisite: course 101. Limited to nonmajors. Experimental techniques of microbiology, with emphasis on cultivation and characterization of bacteria. Laboratory exercises include light microscopy, quantitative techniques, and identification methods. Students learn to work effectively in groups to perform experiments, record observations, and analyze results. Letter grading.

101. Introductory Microbiology. (4) Lecture, three hours; discussion, one hour. Requisites: Life Sciences 3, 4. Historical foundations of microbiology; introduction to bacterial structure, physiology, biochemistry, genetics, and ecology. Letter grading.

102. Introductory Virology. (4) Lecture, three hours; discussion, one hour. Requisite: Life Sciences 3 with grade of C– or better. Biological properties of bacterial and animal viruses, replication, methods of detection, interactions with host cells and multicellular hosts. Letter grading.

103L. Laboratory Methods in Modern Microbiology and Immunology. (5) Lecture, two and one half hours; laboratory, eight hours. Requisites: Life Sciences 3, 4. Recommended requisite or corequisite: course 101. Practical exposure to modern laboratory methods and analytical techniques that are common to many disciplines, including bacteriology, virology, immunology, pathogenesis, parasitology, genetics, genomics, and bioinformatics. Active use and application of scientific method while working collaboratively on interdisciplinary experiments and projects. Students should leave with ability to draw analogies between disciplines and choose most appropriate method to analyze problems within context of new topics. Letter grading.

105. Biological Microscopy. (4) Lecture, three hours; laboratory, three hours (five weeks only). Requisite: Physics 1B or 6B. Introduction to modern microscopy technologies in biological, medical, and nano applications. Focus on transmission electron microscopy and cryo-electron microscopy and their applications in modern biology. Practical experience provided through five carefully designed electron microscopy laboratory modules. Basic principles of microscopy and image formation, methods for sample preparation, imaging, data acquisition procedures, and three-dimensional visualization. Topics include light microscopy, electron microscopy, scanning electron microscopy, atomic force microscopy, and other emerging modalities of microscopy in biological research. P/NP or letter grading.

106. Molecular and Genetic Basis of Bacterial Infections. (4) (Formerly numbered C106.) Lecture, three hours; discussion, one hour. Requisite: course 101. Biochemical and genetic properties of bacteria that

afford potential for pathogenicity. Epidemiology and transmission of disease; chemotherapy and drug resistance. Regulation of virulence factors. Letter grading.

107. Viral Pathogenesis. (4) (Formerly numbered C107.) Lecture, three hours; discussion, one hour. Requisites: course 185A, Chemistry 153A. Strongly recommended: course 102. Viral pathogens that infect mammals. Viral entry into and replication in host cells. Host response and host/virus interaction. Pathogenic manifestations exhibited during viral infections. Letter grading.

120. Advanced Techniques in Microbiology. (4) (Formerly numbered C120.) Lecture, one hour; laboratory, six hours. Requisite: course 103L (or former course 101L or 102L) with grade of C or better. Introduction to current recombinant techniques. Experiments include PCR, cloning, and other recombinant techniques. DNA binding recombinant protein is purified from *Escherichia coli* and its ability to bind to DNA studied using gelshift assay. Introduction to protein/protein interaction using yeast two-hybrid system and to tissue culture techniques and transfection and expression of genes for human light and heavy chain antibody. Letter grading.

121A. Microbial Molecular Biology Laboratory. (4) (Formerly numbered 188.) Lecture, two hours; laboratory, six hours. Requisites: courses 101, and 103L (or former course 101L or 102L), with grades of C or better. Limited to 24 students. Discovery-based research experience in which students evaluate hypotheses, conduct experiments, and analyze data generated through active participation in project that utilizes techniques from combination of following disciplines: molecular biology, environmental microbiology, bacteriology, community ecology, bioinformatics, and biological systematics. Experiments include enrichment culture, environmental DNA isolation, PCR, cloning, gel electrophoresis, DNA sequencing reactions, database searches, and phylogenetic analysis. Letter grading.

CM122. Mouse Molecular Genetics. (2) (Same as Human Genetics CM122.) Lecture, two hours. Requisite: Life Sciences 4. Emphasis on use of mouse genetic approach to studying fundamental biological questions. Topics include mouse genome and functional genomics, mutagenesis screening and cloning of disease genes, transgenesis and its application in developmental biology, stem cell biology, neurobiology, and modeling human genetic disorders. Reading materials include original papers and reviews. Concurrently scheduled with course CM222. P/NP or letter grading.

123. Advanced Annotation and Comparative Genomics. (4) Lecture, two and one half hours; computer laboratory, six hours. Requisite: course 103L or Life Sciences 187A with grade of B– or better. Participation in discovery-based research experience, working as research team to analyze microbial genomes using bioinformatics techniques involving variety of online databases. Investigation of cellular pathways and structures as means to discover novel genes and unusual variations in classical systems. Results of high-quality annotation efforts may lead to publication in peer-reviewed science journal. Part of DOE Joint Genome Institute Undergraduate Research in Microbial Genome Annotation education program. Offered in summer only. Letter grading.

132. Cell Biology of Nucleus. (4) (Formerly numbered C132.) Lecture, three hours; discussion, one hour. Requisite: Life Sciences 4. Cell biology of eukaryotic nucleus, including principles of chromosome structure, transcription, RNA processing, nuclear-cytoplasmic transport, and cell cycle control. Letter grading.

CM133. Frontiers in Biotechnology. (2) (Formerly numbered C133.) (Same as Chemical Engineering CM133.) Lecture, two hours. Requisites: Chemistry 153A and 153B, or Life Sciences 3 and 4, with grades of B or better. Integration of science and business in biotechnology. Coevolution with pharmaceutical, agricultural, and other key industries, therapeutics, crop improvement, devices, and other industry sectors. Academic research leading to licensing and founding of companies that turn research breakthroughs into marketable products. Stages of product discovery and de-

velopment. Staged financing and growth: private offerings, public offerings, deals, collaborations, outsourcing. Intellectual property, regulation, pricing, profits, risks, public perception. Building value, exit strategies, mergers and acquisitions. Concurrently scheduled with course CM233. P/NP or letter grading.

C134. Ethics and Accountability in Biomedical Research. (2) Seminar, two hours. Designed for graduate students and undergraduates who have credit for life sciences or biomedical individual studies 199 course. Responsibilities and ethical conduct of investigators in research, data management, mentorship, grant applications, and publications. Responsibilities to peers, sponsoring institutions, and society. Conflicts of interest, disclosure, animal subject welfare, human subject protection, and areas in which investigational goals and certain societal values may conflict. Concurrently scheduled with course C234. P/NP grading.

CM156. Human Genetics. (4) (Same as Human Genetics CM156 and Molecular, Cell, and Developmental Biology CM156.) Lecture, three hours; discussion, two hours. Requisites: Life Sciences 3, 4. Application of genetic principles in human populations, with emphasis on cytogenetics, biochemical genetics, population genetics, and family studies. Lectures and readings in literature, with focus on current questions in fields of medical and human genetics and methodologies appropriate to answer such questions. Concurrently scheduled with course CM256. Letter grading.

158. Microbial Genomics. (4) Lecture, three hours; discussion, one hour. Requisites: course 101, Chemistry 153A. Evolution, biodiversity, and sequencing of genomes; bacterial and viral genomes; bioenergetics; gene knockouts; genomics of antibiotic resistance; proteomics. Guest lecturers from department and related departments who discuss key papers with focus on their areas of expertise. Letter grading.

168. Molecular Parasitology. (4) (Formerly numbered C168.) Lecture, three hours; discussion, one hour. Requisites: Life Sciences 3, 4. Survey of parasitic protozoa not only as parasites that interact with host, but also as model systems for analysis of basic biological phenomena such as gene regulation, molecular development, cell-cell interactions, molecular evolution, and novel biochemical pathways. Letter grading.

C174. Advanced Topics in Molecular Parasitology. (2) Lecture, two hours. Requisites: course 168, Life Sciences 3, 4. Examination of recent advances in molecular biology of parasites and host/parasite relationship. Specific topics include parasite development, antigenic variation in trypanosomes, RNA editing, prospects for parasitic vaccines. Concurrently scheduled with course C274. Letter grading.

185A. Immunology. (5) Lecture, three hours; discussion, 90 minutes. Requisites: Life Sciences 3, 4. Recommended requisite or corequisite: Chemistry 153A. Not open for credit to students with credit for course 261. Introduction to experimental immunobiology and immunochemistry; cellular and molecular aspects of humoral and cellular immune reactions. Letter grading.

191H. Honors Research Seminars: Microbiology, Immunology, and Molecular Genetics. (2) Seminar, two hours. Requisite or corequisite: course 198A or 198B or 198C. Limited to senior microbiology, immunology, and molecular genetics honors program students. Discussion of current research literature, with focus on thesis topics/areas that students are working on as part of departmental honors requirements. One-hour presentation of student thesis research and current literature associated with it required. May be repeated for credit. Letter grading.

193A. Journal Club Seminars: Microbiology, Immunology, and Molecular Genetics. (1) (Formerly numbered 193.) Seminar, one hour. Limited to undergraduate students. Discussion of readings selected from current literature in microbiology, immunology, and molecular genetics field. P/NP grading.

193B. Journal Club Seminars: Microbiology, Immunology, and Molecular Genetics. (1) Seminar, one hour. Limited to undergraduate students. Discussion of readings selected from current literature in microbiology, immunology, and molecular genetics. Letter grading.

194A. Research Group Seminars: Microbiology, Immunology, and Molecular Genetics. (1) Seminar, one hour. Designed for undergraduate students who are part of research group in department faculty laboratory. Discussion of research methods and current literature in field or of research of faculty members or students. May be repeated for credit. P/NP grading.

194B. Research Group Seminars: UC LEADS and NIH/MARC. (2) Seminar, two hours. Limited to students in UC LEADS and NIH/MARC programs. Analysis, review, and critique of current papers in biomedical sciences disciplines, using skills necessary for effective oral communication and effective use of software such as PowerPoint for oral presentations. May be repeated for credit. Letter grading.

197. Individual Studies in Microbiology, Immunology, and Molecular Genetics. (2 to 4) Tutorial, four hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

198A-198B-198C. Honors Research in Microbiology, Immunology, and Molecular Genetics. (4-4-4) Tutorial, 12 hours. Course 198A is requisite to 198B, which is requisite to 198C. Limited to junior/senior microbiology, immunology, and molecular genetics honors program students. Directed individual research for departmental honors; students must have faculty sponsor. Progress report must be submitted to faculty sponsor at end of each of first two terms, with honors thesis submitted at end of final term. Maximum of 4 units may be applied toward major, with balance applied toward B.S. degree requirements. Course 198C may be repeated for credit with P/NP grading. Individual contract required. In Progress (198A, 198B) and P/NP or letter (198C) grading.

199A-199B-199C. Directed Research in Microbiology, Immunology, and Molecular Genetics. (4-4-2 to 4) Tutorial, 12 hours. Preparation: minimum 3.0 grade-point average in premajor and major. Limited to junior/senior Microbiology, Immunology, and Molecular Genetics majors. Supervised individual research project under guidance of departmental faculty mentor. Copy of report describing research must be filed with Student Affairs Office by end of term. Individual contract required. **199A.** Requisite: Chemistry 153A. In Progress grading. **199B.** Requisite: course 199A. Culminating paper or project required. Letter grading. **199C.** Requisite: course 199B. Culminating paper or project required. May be repeated for credit. P/NP or letter grading.

Graduate Courses

208. Molecular Biology of Animal Viruses. (4) Lecture, three hours. Preparation: courses in general biochemistry and general microbiology, including virology. Recommended for advanced undergraduate students with majors in public health, biology, or microbiology and for graduate students with interest in any field of biology or chemistry. Overview of animal viruses, including viral structure, virus cell interaction, virus replication, and viral oncogenesis. Special emphasis on understanding molecular mechanism involved in control and regulation of replication, transcription, and translation of viral genome and its complex interaction with host. Letter grading.

CM222. Mouse Molecular Genetics. (2) (Same as Human Genetics CM222.) Lecture, two hours. Requisite: Life Sciences 4. Emphasis on use of mouse genetic approach to studying fundamental biological questions. Topics include mouse genome and functional genomics, mutagenesis screening and cloning of disease genes, transgenesis and its application in developmental biology, stem cell biology, neurobiology, and modeling human genetic disorders. Reading materials include original papers and reviews. Concurrently scheduled with course CM122. S/U or letter grading.

M229. Molecular Mechanisms of Host/Pathogen Interaction. (4) (Same as Pathology M229.) Lecture, two hours; discussion, two hours. Requisite: Biological Chemistry CM253. Molecular mechanisms of mi-

crobial interactions with eukaryotic host cells that result in disease or pathogen survival. Topics include pathogenesis of common viruses, bacteria, fungi, and parasites, basis of toxin-mediated cellular damage, and immune suppression of microbial tissue damage. Letter grading.

CM233. Frontiers in Biotechnology. (2) (Formerly numbered C233.) (Same as Chemical Engineering CM233.) Lecture, two hours. Requisites: Chemistry 153A and 153B, or Life Sciences 3 and 4, with grades of B or better. Integration of science and business in biotechnology. Coevolution with pharmaceutical, agricultural, and other key industries, therapeutics, crop improvement, devices, and other industry sectors. Academic research leading to licensing and founding of companies that turn research breakthroughs into marketable products. Stages of product discovery and development. Staged financing and growth: private offerings, public offerings, deals, collaborations, outsourcing. Intellectual property, regulation, pricing, profits, risks, public perception. Building value, exit strategies, mergers and acquisitions. Concurrently scheduled with course CM133. S/U or letter grading.

C234. Ethics and Accountability in Biomedical Research. (2) Seminar, two hours. Designed for graduate students and undergraduates who have credit for life sciences or biomedical individual studies 199 course. Responsibilities and ethical conduct of investigators in research, data management, mentorship, grant applications, and publications. Responsibilities to peers, sponsoring institutions, and society. Conflicts of interest, disclosure, animal subject welfare, human subject protection, and areas in which investigational goals and certain societal values may conflict. Concurrently scheduled with course C134. S/U grading.

M240. Cytokines and Reproductive Biology. (2) (Same as Molecular, Cell, and Developmental Biology M240.) Lecture, 90 minutes; discussion, one hour. Overview of current progress on research in cytokines and other immune system molecules in reproductive biology. S/U or letter grading.

242. Seminar: Microbial Molecular Genetics. (2) Seminar, two hours. Student and instructor presentations and critical discussion of newly emerging concepts in prokaryotic and/or eukaryotic molecular genetics. Emphasis on nature of the gene and control of gene expression. May be repeated for credit. S/U or letter grading.

244. Research Ethics Seminar. (2) Seminar, two hours. Designed for students supported by UCLA Predoctoral Training Program in Genetic Mechanisms and required of all trainees in two of their three years of support. Examination of prominent cases of scientific fraud through analysis and formal discussion. Faculty and students from School of Law may be invited to participate. S/U grading.

250. Seminar: Microbial Metabolism. (2) Seminar, two hours. Discussion and student presentations of recent work in areas of genetic regulation and physiology of bacterial metabolism. S/U or letter grading.

CM256. Human Genetics. (4) (Same as Human Genetics CM256 and Molecular, Cell, and Developmental Biology CM256.) Lecture, three hours; discussion, two hours. Requisites: Life Sciences 3, 4. Application of genetic principles in human populations, with emphasis on cytogenetics, biochemical genetics, population genetics, and family studies. Lectures and readings in literature, with focus on current questions in fields of medical and human genetics and methodologies appropriate to answer such questions. Concurrently scheduled with course CM156. Independent research project required of graduate students. Letter grading.

261. Molecular and Cellular Immunology. (4) Lecture, four hours. Requisite: Biological Chemistry CM253. Strongly recommended corequisite: course 298. Comprehensive course for graduate students and selected undergraduate students covering fundamentals and recent advances in molecular and cellular immunology. Lectures supplemented by course 298 seminar, with focus on reading and analysis of primary research articles. Oral presentation required. S/U or letter grading.

262A-262B-262C. Seminars: Current Topics in Immunobiology of Cancer. (2-2-2) Seminar, two hours. Designed for graduate students (or undergraduate students with consent of instructor). Review of recent literature in immunology, biology, and biochemistry of cancer, with emphasis on fundamental studies involving cell-mediated immunity, humoral response, tumor specific antigens, and new techniques. Discussion of reports on scientific meetings. Each course may be repeated for credit. S/U or letter grading.

270. Seminar: Molecular Virology. (2) Seminar, two hours. Designed for graduate students. Discussion and student presentations of recent work in molecular virology, including viral gene expression and function. S/U grading.

C274. Advanced Topics in Molecular Parasitology. (2) Lecture, two hours. Requisites: Life Sciences 3, 4. Examination of recent advances in molecular biology of parasites and host/parasite relationship. Specific topics include parasite development, antigenic variation in trypanosomes, RNA editing, prospects for parasitic vaccines. Concurrently scheduled with course C174. Letter grading.

296. Seminar: Research Topics in Microbiology, Immunology, and Molecular Genetics. (1 to 4) Seminar, two hours; research group meeting, one hour. Limited to departmental graduate students. Advanced study and analysis of current topics in microbiology, immunology, and molecular genetics. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

298. Current Topics in Microbiology, Immunology, and Molecular Genetics. (2) Seminar, two hours. Strongly recommended corequisite: course 261. Presentation of student oral critiques and participation in discussions on assigned topics. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Preparation for Teaching Microbiology in Higher Education. (2) Seminar/discussion/laboratory, two hours. Designed for graduate students. Study of problems and methodologies in teaching microbiology, including workshops, seminars, apprentice teaching, and peer observation. S/U or letter grading.

596. Directed Individual Research. (2 to 12) Tutorial, to be arranged. S/U grading.

598. Research for M.S. Thesis. (2 to 12) Tutorial, to be arranged. S/U grading.

599. Research for Ph.D. Dissertation. (2 to 12) Tutorial, to be arranged. S/U grading.

MIDDLE EASTERN AND NORTH AFRICAN STUDIES

*Interdepartmental Program
College of Letters and Science*

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Claudia Rapp, D.Phil., *Chair*

Faculty Administrative Committee

Osman M. Galal, M.D., Ph.D. (*Community Health Sciences*)
 Nouri Gana, Ph.D. (*Comparative Literature*)
 Sharon E. Gerstel, Ph.D. (*Art History*)
 Gil Z. Hochberg, Ph.D. (*Comparative Literature*)
 Michael G. Morony, Ph.D. (*History*)
 Claudia Rapp, D.Phil. (*History*)
 Willemina Z. Wendrich, Ph.D. (*Near Eastern Languages and Cultures*)

Scope and Objectives

The major and minor in Middle Eastern and North African Studies (MENAS) offer in-depth knowledge and specialized study of this geographic region, its peoples, and its cultures from the end of antiquity to the present. The program also explores the role and influence of this rich cultural heritage around the world. A strong foundation in history is complemented by a wide selection of courses from art history, geography, Near Eastern languages and cultures, political science, and sociology.

The graduate major in this discipline is called Islamic Studies. For details, see the program by that name earlier in this section.

Undergraduate Study

Middle Eastern and North African Studies B.A.

Preparation for the Major

Required: The first-year course in Arabic, Armenian, Hebrew, Persian, or Turkish, or the equivalent level of proficiency as determined by admission into a second-year language course (other languages may be substituted by petition); History 9D; and three lower division courses (at least 12 units) with Middle Eastern or North African content selected from Anthropology 8, 9, Comparative Literature 1A, 1B, 1C, 1D, Economics 1, 2, Ethnomusicology 20B, 91L, 91N, Geography 3, History 20, 21, 22, Near Eastern Languages 50A, 50B, 50C, Political Science 20, 50, Sociology 1. Other courses may be substituted by petition, but only with advance approval.

To enter the major, students must be in good academic standing (minimum overall 2.0 grade-point average), have completed 45 units and the requirements for the Preparation for the Major, and meet with the academic counselor in 10357 Bunche Hall.

Transfer Students

Transfer applicants to the Middle Eastern and North African Studies major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: one course in Middle Eastern and North African history and three additional courses with relevant content (eligibility of courses to be determined at the introductory counseling meeting).

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: At least 11 upper division courses as follows: (1) three courses at the intermediate or advanced level or the equivalent in the Middle Eastern language taken in lower division, or the equivalent level of proficiency as determined by a departmentally administered examination, (2) History 105A, 105B, 105C, and (3) five elective courses, including courses in three different departments and two courses in a single department, to be selected from Anthropology 176, Art History 104A, 104B, C104C, 105E, Economics 111, 112, Ethnomusicology 161L and 161N (both must be taken to equal one 4-unit course), French 121, 160, Geography 187, History, 108A, 116A, 116B, 164B, 164C, 167A, upper division Near Eastern Languages and Cultures nonlanguage courses, Political Science 132A, M132B, 157, 165.

Students may petition for the following preapproved courses to fulfill upper division elective requirements for the major: (1) any one special topics course with substantial Middle Eastern or North African content and focus on the period after 300 C.E. and (2) one relevant methodology course such as Political Science 170A, Psychology 142H, or Sociology 112. Other courses may be substituted by petition, but only with advance approval.

No more than 32 of the 44 units required for the major may be in one department, and at least 22 upper division units must be in departments that offer a major in the College of Letters and Science. No more than 20 units may be applied toward both this major and a major or minor in another department or program. Each course must be completed with a grade of C (2.0) or better.

Middle Eastern and North African Studies Minor

The Middle Eastern and North African Studies minor allows students to select from a broad range of courses in various departments to develop professional and methodological skills with area expertise. The minor enables students with an interest in the region to add dimension to their programs.

To enter the minor, students must have an overall grade-point average of 2.0 or better, have completed 45 units, and file a petition and seek counseling with the academic counselor in 10357 Bunche Hall.

Required Lower Division Courses (8 units): History 9D and one course selected from Anthropology 8, 9, Comparative Literature 1A, 1B, 1C, 1D, Economics 1, 2, Ethnomusicology 20B, 91L, 91N, Geography 3, History 20, 21, 22, Near Eastern Languages 50A, 50B, 50C, Political Science 20, 50, Sociology 1.

Required Upper Division Courses (20 units): Three social sciences or humanities courses (one course from History 105A, 105B, 105C, 108A, 116A, 116B, 164B, 164C, or 167A must be included) and two courses with specific Middle Eastern or North African content. Courses must be selected from Anthropology 176, Art

History 104A, 104B, C104C, 105E, Economics 111, 112, Ethnomusicology 161L and 161N (both must be taken to equal one 4-unit course), French 121, 160, Geography 187, History, 108A, 116A, 116B, 164B, 164C, 167A, upper division Near Eastern Languages and Cultures nonlanguage courses, Political Science 132A, M132B, 157, 165.

Other courses may be substituted by petition, but only with advance approval.

No more than 8 to 10 units (two courses) may be applied toward both this minor and a major or minor in another department or program.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Middle Eastern and North African Studies

Upper Division Course

191A. Variable Topics Research Seminars: Middle Eastern and North African Studies. (4) Seminar, three hours. Research seminars on selected topics in Middle Eastern and North African studies. Reading, discussion, and development of culminating project. May be repeated for credit with topic change. P/NP or letter grading.

MOLECULAR AND MEDICAL PHARMACOLOGY

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 Samson A. Chow, Ph.D., *Vice Chair*
 Johannes Czernin, M.D., *Vice Chair*
 Harvey R. Herschman, Ph.D., *Vice Chair*

Professors

Jorge R. Barrio, Ph.D. (*Elizabeth R. and Thomas E. Plott Professor of Gerontology*)
 Christian Behrenbruch, M.B.A.
 Jonathan Braun, M.D., Ph.D.
 Maria G. Castro, Ph.D., *in Residence*
 Gautam Chaudhuri, M.D., Ph.D.
 Samson A. Chow, Ph.D.
 Matthew E. Conolly, M.D.
 Johannes Czernin, M.D.
 Magnus Dahlbom, Ph.D., *in Residence*
 Roy Doumani, LL.D.
 Cameron B. Gundersen, Ph.D.
 Harvey R. Herschman, Ph.D. (*Crump Professor of Medical Engineering*)
 David A. Hovda, Ph.D.
 Sung-Cheng (Henry) Huang, D.Sc.
 Louis J. Ignarro, Ph.D. (*Nobel laureate, Jerome J. Belzer Professor of Medical Research*)
 Noriyuki Kasahara, M.D., Ph.D.

Daniel L. Kaufman, Ph.D.
 Paul A. Krogstad, M.D., Ph.D.
 Edythe D. London, Ph.D., *in Residence*
 Pedro R. Lowenstein, M.D., Ph.D., *in Residence*
 Jamshid Maddahi, M.D.
 John C. Mazzotta, M.D., Ph.D. (*Frances Stark
 Professor of Neurology*)
 William P. Melega, Ph.D., *in Residence*
 Paul Mischel, M.D.
 Richard W. Olsen, Ph.D.
 Michael E. Phelps, Ph.D. (*Norton Simon Professor of
 Biophysics*)
 Nagichettiar Satyamurthy, Ph.D., *in Residence*
 Heinrich R. Schelbert, M.D., Ph.D.
 Christiaan W.J. Schiepers, M.D., Ph.D.
 Ren Sun, Ph.D.
 Ligia G. Toro, Ph.D.
 Owen N. Witte, M.D. (*President's Professor of
 Developmental Immunology*)
 Anna Wu Work, Ph.D.
 Hong Wu, M.D., Ph.D. (*David Geffen Professor of
 Medical Research*)

Professor Emeriti

Arthur K. Cho, Ph.D.

Associate Professors

Wei Chen, M.D., Ph.D.
 Sherrel G. Howard, Ph.D.
 Jing Huang, Ph.D.
 Harley I. Kornblum, M.D., Ph.D.
 Xin Liu, M.D., Ph.D.
 Daniel H. Silverman, M.D., Ph.D.
 Desmond Smith, M.D., Ph.D.
 Yi E. Sun, Ph.D., *in Residence*
 Hsian-Rong Tseng, Ph.D.
 Lily Wu, Ph.D.

Assistant Professors

Martin Allen-Auerbach, M.D.
 Thomas G. Graeber, Ph.D.
 Arion Hadjoannou, Ph.D.
 Huiying Li, Ph.D.
 Caius G. Radu, Ph.D.
 Michael Van Dam, Ph.D.

Adjunct Professors

James R. Heath, Ph.D.
 Barbara A. Levey, M.D. (*Rosalinde and Arthur Gilbert
 Foundation Endowed Professor of Interdepartmental
 Clinical Pharmacology*)
 Srinivasa T. Reddy, Ph.D.
 Jide Tian, M.D.
 Christine H. Wu, Ph.D.

Adjunct Associate Professors

Meisheng Jiang, Ph.D.
 David B. Stout, Ph.D.
 Joy A. Umbach, Ph.D.

Adjunct Assistant Professor

Martin Wallner, Ph.D.

Scope and Objectives

The Department of Molecular and Medical Pharmacology has basic and clinical components in which students have opportunities to develop intellectually and experimentally in basic biological sciences placed in the context of human disease. The department conducts integrative teaching and research programs that begin with molecular interactions and extend to studies of diseases and their treatment in humans. Departmental investigators study the biochemistry and pharmacology of drugs, gene expression and its regulation, signal transduction processes, cell-to-cell communication, viral replication and pathogenesis, autoimmune disease, neuronal development and plasticity, and integrated organ functions using techniques of chemistry and structural biology, DNA microarrays, molecular and cell biology, transgenic and

chimeric mice, and cellular and organ imaging. Organic synthesis, genetic engineering, and imaging techniques such as confocal fluorescence and cryoelectron microscopy, autoradiography, and positron emission tomography (PET) are extensively employed. The imaging techniques are available in the Crump Institute for Molecular Imaging, Ahmanson Biological Imaging Clinic, and UCLA-DOE Laboratory of Structural Biology and Molecular Medicine, which are affiliated with the department. The goal of the education program is to provide faculty members and students the opportunity to examine the molecular and clinical basis of disease and the mechanisms of drugs in their treatment, as well as to visualize the changes in the disease state with procedures that monitor the molecular basis of cellular and organ function.

The graduate program seeks to prepare students for these interdisciplinary activities with a basic foundation in genetics, molecular and cellular biology, and pharmacology during their first year in residence. The second year is spent in the laboratory and in elective courses selected to reflect each student's interest, background, and requirements for the research undertaken. Numerous opportunities for interaction with other departments, institutes, and programs are provided through interdisciplinary coursework and many collaborative research activities.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Molecular and Medical Pharmacology offers Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Molecular and Medical Pharmacology.

The department also offers two M.D./Ph.D. programs concurrently with the School of Medicine. One is the Medical Scientist Training Program (MSTP) in which candidates are medical students that have been accepted into MSTP by the School of Medicine in order to qualify. The second is the Specialty Training and Advanced Research (STAR) Program in which candidates are post-M.D. housestaff (interns, residents, or fellows) who have been accepted into the STAR Program by its selection committee in order to qualify.

The department, together with the Division of Laboratory Animal Medicine, offers Ph.D. or postdoctoral training combined with residency training for veterinarians (with D.V.M. or D.V.M./Ph.D. degrees) in the Veterinary Investigator in Scientific Training and Advancement (VISTA) program.

Note: There is no degree program in pharmacy at UCLA.

Molecular and Medical Pharmacology

Upper Division Courses

M110A. Drugs: Mechanisms, Uses, and Misuse. (4) (Same as Molecular Toxicology M110A.) Lecture, four hours (seven weeks); discussion, four hours (three weeks). Requisites: Life Sciences 2, 3. Course M110A is requisite to 110B. Introduction to pharmacology and toxicology for undergraduate students, emphasizing drug development and mechanisms of action of drugs and toxic agents. Letter grading.

110B. Drugs: Mechanisms, Uses, and Misuse. (4) Lecture, four hours (seven weeks); discussion, four hours (three weeks). Requisites: course M110A, Life Sciences 2, 3. Introduction to pharmacology for undergraduate students, emphasizing principles underlying mechanism of action of drugs, their development, control, rational use, and misuse. Letter grading.

199. Directed Research in Molecular and Medical Pharmacology. (2 to 8) Tutorial, three hours per week per unit. Limited to juniors/seniors. Supervised individual research under guidance of faculty mentor. Special studies in pharmacology, including either reading assignments or laboratory work or both, designed for proper training of students. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200. Introduction to Laboratory Research. (4 to 8) Laboratory, eight to 16 or 16 to 20 hours. Individual projects in laboratory research for beginning graduate students. At end of each term students submit to their supervisor reports covering research performed. Pharmacology graduate students must take this course three times during their first two years in residence. S/U or letter grading.

203. Medical Pharmacology. (2) Lecture, zero to two hours; discussion, zero to two hours. Requisites: courses 211A, 211B. Series of lectures and case presentations designed to illustrate principles of pharmacology in a clinical context, and solution of practical therapeutics by reference to pharmacokinetics, mechanisms of action, and disposition of drugs. S/U or letter grading.

M205A. Introduction to Chemistry of Biology. (3) (Formerly numbered M205.) (Same as Chemistry CM205A.) Lecture, three hours. Enforced requisite: Chemistry 153A with grade of C- or better. Introduction to chemical biology. Topics include computational chemical biology, utility of synthesis in biochemical research, peptidomimetics, designed reagents for cellular imaging, natural product biosynthesis, protein engineering and directed evolution, cell biology of metal ions, imaging metal ions in cells, metal-containing drugs. S/U or letter grading.

M205B. Issues on Chemistry/Biology Interface. (2) (Same as Chemistry M205B.) Seminar, one hour. Requisite: course M205A. Selected talks and papers presented by training faculty on solving problems and utilizing tools in chemistry and molecular biology on chemistry/biology interface (CBI). S/U grading.

211A-211B. Principles of Pharmacology. (4-2) Lecture, three to eight hours; discussion, zero to nine hours. Preparation: mammalian physiology, biochemistry. Systematic consideration of principles governing interaction between drugs and biological systems and of principal groups of drugs used in therapeutics. Particular attention on modes of action, pharmacokinetics, and disposition to provide a scientific basis for their rational use in medicine. S/U or letter grading.

212A-212B. Graduate Commentary: Medical Pharmacology. (2-2) Preparation: mammalian physiology, biochemistry. Supplementation of topics covered in course 203. Primarily for graduate students. S/U or letter grading.

234A-234B. Experimental Methods in Pharmacology. (2-2) Laboratory, three hours. Survey of experimental methods and instrumentation used in analysis, identification, and study of mechanisms of action of pharmacologically active compounds. S/U or letter grading.

M234C. Laboratory in Toxicological Methods. (2) (Same as Environmental Health Sciences M245 and Molecular Toxicology M245.) Lecture, one hour; laboratory, four to five hours. Survey of experimental techniques used in study of toxic substances. Experiments conducted within known toxin to demonstrate its effects at molecular, cellular, and tissue levels. Presentation of principles of techniques and methods of data analysis at discussion session prior to laboratory. Letter grading.

237. Research Frontiers in Cellular and Molecular Pharmacology. (6) Lecture, six hours; laboratory, five hours total. Detailed examination of principles of pharmacology and mechanisms of drug action at organismal, tissue, cellular, and molecular levels, with emphasis on receptors, receptor/effector coupling, neurotransmitters, cardiovascular pharmacology, autonomic and central nervous system pharmacology. Letter grading.

M241. Introduction to Chemical Pharmacology and Toxicology. (6) (Same as Molecular Toxicology M241.) Lecture, six hours. Preparation: organic and biological chemistry. Designed for molecular and medical pharmacology students. Introduction to general principles of pharmacology. Role of chemical properties of drugs in their distribution, metabolism, excretion, and modes of action. S/U or letter grading.

M248. Introduction to Biological Imaging. (4) (Same as Biomedical Engineering M248 and Biomedical Physics M248.) Lecture, three hours; laboratory, one hour; outside study, seven hours. Exploration of role of biological imaging in modern biology and medicine, including imaging physics, instrumentation, image processing, and applications of imaging for range of modalities. Practical experience provided through series of imaging laboratories. Letter grading.

251. Seminar: Pharmacology. (2) Seminar presented by students, faculty, and guest lecturers on a variety of topics. S/U grading.

M257. Introduction to Toxicology. (4) (Same as Pathology M257.) Requisite: course M241. Biochemical and systemic toxicology, basic mechanisms of toxicology, and interaction of toxic agents with specific organ systems. S/U or letter grading.

M258. Pathologic Changes in Toxicology. (4) (Same as Pathology M258.) Designed to give students experience in learning normal histology of tissues which are major targets of toxin and the range of pathologic changes that occur in these tissues (liver, bladder, lung, kidney, nervous system, and vascular system). S/U or letter grading.

286. Business of Science: Exploring Entrepreneurship Seminar. (1) Seminar, one hour. Limited to graduate students. Further exploration of topics discussed in course 287, allowing students to interact with speakers and bring their individual concerns to table. Past and present students encouraged to enroll. S/U grading.

287. Business of Science: Exploring Entrepreneurship. (2) Lecture, two hours. Limited to graduate students. Introduction to principles of business and entrepreneurship in technology sectors. Basic business skills and knowledge required to effectively perform in commercial environment and within academic environment that is increasingly involved in industry partnerships. Exploration of entrepreneurship, particularly formation and operation of new business ventures. Presentations by and questioning of successful technology entrepreneurs. Significant aspects of identifying and evaluating new venture opportunities, development of financing, legal considerations, and en-

try and exit strategies presented and examined through critical discussion. Development of new venture feasibility analysis by students for product of their choice. S/U or letter grading.

288. Gene Therapy. (4) Lecture, three hours; discussion, one hour. Introduction to basic concepts of gene therapy, wherein treatment of human disease is based on transfer of genetic material into an individual. Discussion of molecular basis of disease, gene delivery vectors, and animal models. Letter grading.

291. Special Topics in Pharmacology. (4) Lecture, four hours. Examination in depth of topics of current importance in pharmacology. Emphasis on recent contributions of special interest to advanced Ph.D. candidates and faculty. Letter grading.

293. Nitric Oxide Chemistry, Biochemistry, and Physiology. (2 or 4) Lecture, two or four hours. Basic chemistry, biochemistry, and physiology of nitric oxide and related species, with emphasis on understanding novel mechanisms of nitrogen oxide function as both a physiological and pathophysiological agent/messenger. S/U or letter grading.

298. Seminar: Current Topics in Molecular and Medical Pharmacology. (2) Limited to pharmacology, ACCESS program, and interdepartmental Molecular Biology Ph.D. program students. Students conduct or participate in discussions on assigned topics. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

596. Directed Individual Research in Pharmacology. (4 to 12) Tutorial, to be arranged. S/U or letter grading.

599. Research for and Preparation of Ph.D. Dissertation. (4 to 12) Tutorial, to be arranged. S/U grading.

MOLECULAR BIOLOGY

*Interdepartmental Program
College of Letters and Science*

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Steven G. Clarke, Ph.D., *Chair*

Faculty Administrative Committee

Peter J. Bradley, Ph.D. (*Microbiology, Immunology, and Molecular Genetics*)
Michael F. Carey, Ph.D. (*Biological Chemistry*)
Guillaume F. Chanfreau, Ph.D. (*Chemistry and Biochemistry*)
Jau-Nian Chen, Ph.D. (*Molecular, Cell, and Developmental Biology*)
Steven G. Clarke, Ph.D. (*Chemistry and Biochemistry*)
Christopher T. Denny, M.D. (*Pediatrics*)
Timothy F. Lane, Ph.D. (*Obstetrics and Gynecology, Biological Chemistry*)
Sabeha Merchant, Ph.D. (*Chemistry and Biochemistry*)
Kathrin Plath, Ph.D. (*Biological Chemistry*)
Peter Tontonoz, M.D., Ph.D. (*Pathology and Laboratory Medicine*)

Scope and Objectives

The Ph.D. in Molecular Biology is offered under the supervision of an interdepartmental committee. The Molecular Biology Institute serves

this committee and the various departments concerned in support of faculty research and teaching associated with the Ph.D. program. Staff members are from participating departments and from the Molecular Biology Institute. Areas for study include cell biology; developmental biology and neurobiology; nucleic acid biochemistry; gene regulation; immunobiology; microbiology/virology and pathogenesis; molecular evolution and paleobiology; oncogenes and signal transduction; plant molecular biology; protein and enzyme structure and function; genomics; bioinformatics; and structural biology.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degree

The Molecular Biology Program offers the Doctor of Philosophy (Ph.D.) degree in Molecular Biology.

Molecular Biology

Graduate Course

298. Current Topics in Molecular Biology. (2) Student presentation/seminar, two hours. Students present oral critiques and participate in discussions on assigned topics. S/U grading.

MOLECULAR, CELL, AND DEVELOPMENTAL BIOLOGY

College of Letters and Science

UCLA
2128 Life Sciences
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(310) 825-7109, *Undergraduate Office*
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e-mail: undergradmcbd@lifesci.ucla.edu

(310) 794-4256, *Graduate Office*
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Utpal Banerjee, Ph.D., *Chair*

Professors

John S. Adams, M.D.
Utpal Banerjee, Ph.D. (*Irving and Jean Stone
Endowed Professor of Life Science*)
Robert B. Goldberg, Ph.D.
Volker Hartenstein, Ph.D.
Ann M. Hirsch, Ph.D.
Luisa M. Iruela-Arispe, Ph.D.
David K. Jacobs, Ph.D.
Steven E. Jacobsen, Ph.D.
Harumi Kasamatsu, Ph.D.
James A. Lake, Ph.D.

Frank A. Laski, Ph.D.
Chentao Lin, Ph.D.
Shuo Lin, Ph.D.
Karen M. Lyons, Ph.D.
John R. Merriam, Ph.D.
Elaine M. Tobin, Ph.D.

Professors Emeriti

William R. Clark, Ph.D.
John H. Fessler, Ph.D.
Paul H. O'Lague, Ph.D.
Winston A. Salsler, Ph.D.
Fritiof S. Sjostrand, Ph.D.
Clara M. Szego, Ph.D.

Associate Professors

Jau-Nian Chen, Ph.D.
Matteo Pellegrini, Ph.D.

Assistant Professors

Amander T. Clark, Ph.D.
Andrew C. Diener, Ph.D.
William E. Lowry, Ph.D. (*Maria Rowena Ross
Professor of Cell Biology and Biochemistry*)
Hanna K.A. Mikkola, M.D., Ph.D.
Atsushi Nakano, M.D., Ph.D.
Alvaro Sagasti, Ph.D.

Lecturer

Pei-Yun Lee, Ph.D.

Adjunct Professor

Nissim Benvenisty, M.D., Ph.D.

Scope and Objectives

The revolution in modern biology that began with the elucidation of the structure of DNA by Watson and Crick in the 1950s has had a profound effect not only on biological research, but on the way biology is taught as a subject. The field of biology spawned by this discovery, generally called molecular biology, has provided an entirely new framework within which to approach questions in cell and developmental biology. The specializations, both technical and conceptual, demanded by this field have led to the growth of molecular biology and its related disciplines into an essentially separate branch of scientific inquiry.

Students who complete the requirements for the Bachelor of Science degree in Molecular, Cell, and Developmental Biology are exceptionally well prepared to pursue careers in cellular and subcellular biological research, biomedical research, or medicine or allied health fields. The degree combines essential background studies in mathematics, chemistry, and physics with a general introduction to all of the biological subjects, as well as in-depth exposure to key topics in molecular, cell, and developmental biology. The Ph.D. degree provides opportunity for advanced concentrated study and requires independent and innovative research that ultimately results in publishable dissertation materials.

Undergraduate Study

Molecular, Cell, and Developmental Biology B.S.

The Bachelor of Science degree in Molecular, Cell, and Developmental Biology (MCDB) is designed especially for students who intend to go on to postgraduate work in biology or medicine and for students aiming for entry-level po-

sitions in biotechnology-related fields. Students are exposed to basic biological and molecular concepts underlying recent technical advances in molecular, cell, and developmental biology of animals and plants. Areas of emphasis include cell biology, immunology, molecular biology, plant biology, developmental biology, and neurobiology, among others.

Preparation for the Major

Life Sciences Core Curriculum

Required: Life Sciences 1, 2, 3, 4; Chemistry and Biochemistry 14A, 14B, 14BL, 14C, 14CL, and 14D, or 20A, 20B, 20L, 30A, 30AL, 30B, and 30BL; Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A; Physics 1A, 1B, 1C, 4AL, and 4BL, or 6A, 6B, and 6C.

Each core curriculum course must be passed with a grade of C– or better, and all courses must be completed with an overall grade-point average of 2.0 or better. Students receiving grades below C– in two core curriculum courses, either in separate courses or repetitions of the same course, are subject to dismissal from the major.

Transfer Students

Transfer applicants to the Molecular, Cell, and Developmental Biology major with 90 or more units must complete the following introductory courses prior to admission to UCLA: one year of general biology with laboratory for majors, preferably equivalent to Life Sciences 1 and 2, one year of calculus, one year of general chemistry with laboratory for majors, and one semester of organic chemistry with laboratory. A second semester of organic chemistry or one year of calculus-based physics is strongly recommended but not required for admission.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required Courses: Chemistry and Biochemistry 153A; one course from Molecular, Cell, and Developmental Biology 104, 150L, 187A, 198B, 198C, 199B, 199C, or Microbiology, Immunology, and Molecular Genetics 103L; one developmental biology course from Molecular, Cell, and Developmental Biology 138 or C141; one cell biology course from M140 or 165A; and one molecular biology course from 144 or 165B.

Electives: At least 20 upper division elective units, of which at least 10 must be in courses offered by the department. Any upper division departmental course, except Molecular, Cell, and Developmental Biology 100, 187B, 187C, 190A, 190B, 190C, 192A, 192B, 193, 194A, or 199, may be selected. The following courses outside the department may be taken to satisfy a maximum of 10 units in this category: Biostatistics 100A or Statistics 100A, Chemistry and Biochemistry 153C, 153L, 154, 156, C159A, C159B, CM160A, Ecology and Evolutionary Biology 110, 121, 162, 162L, Human Genetics C144, Microbiology, Immunology, and Molecular Genetics 100L, 101, 102, 103L, 105, 106,

CM133, 158, 168, C174, 185A, Physiological Science C126, 166, Society and Genetics 102W.

Credit for a maximum of two upper division developmental biology courses from Molecular, Cell, and Developmental Biology 138, C141, and 143 may be applied toward the major. Due to content overlap, students with credit for both courses 165A and 165B cannot receive major credit for course M140.

A maximum of 4 units of approved seminar course credit may be applied toward the electives requirement. A maximum of 12 units of Molecular, Cell, and Developmental Biology 198A through 198D or 199A through 199D may be applied toward the major. Credit for 199 courses from other departments may not be applied except by petition.

Any single course may be applied toward only one category within the major (e.g., course C141 may be applied toward the required or elective category but not toward both).

Each course applied toward requirements for preparation for the major and the major must be taken for a letter grade. Majors must earn a C– or better in each preparation for the major course, and at least a 2.0 (C) overall average in all courses applied toward the major.

Honors Program

Admission

The honors program provides exceptional Molecular, Cell, and Developmental Biology majors with the opportunity to do research culminating in an honors thesis. Junior and senior majors who have completed all university-level coursework, including all preparation courses and requirements for the major with an overall grade-point average of 3.0 or better and a 3.5 GPA or better in the required major courses, may apply for admission to the honors program. Students must have the sponsorship of an approved faculty adviser.

For further information and application forms, students should consult the Student Affairs Office, 2128 Life Sciences, early in their educational planning. Completed applications should be submitted at least two weeks prior to the term in which students plan to begin the honors program.

Requirements

The core of the program consists of at least one approved undergraduate seminar course from Molecular, Cell, and Developmental Biology 191 and three research courses (12 units minimum) from 198A, 198B, and 198C, culminating in a thesis.

To qualify for graduation with honors, students must satisfactorily complete all requirements for the honors program and the major and obtain at least an overall 3.0 grade-point average and a 3.5 GPA or better in coursework required for the major. On recommendation by the faculty sponsor and with approval of the thesis by the departmental honors committee, students are awarded no honors, departmental honors, or highest departmental honors.

At the discretion of the departmental honors committee, students who have (1) a GPA of 3.6 or better, both overall and in the major and (2) demonstrated exceptional accomplishment on the research thesis are awarded highest departmental honors.

Computing Specialization

Majors in Molecular, Cell, and Developmental Biology may select a specialization in Computing by (1) satisfying all the requirements for a bachelor's degree in the major, (2) completing Program in Computing 10A, 10B, 10C, 30, and 60, and (3) completing one course from Computer Science CM186B or Ecology and Evolutionary Biology C159. A grade of C– or better is required in each course, with a combined grade-point average in the specialization of at least 2.0. Students must petition for admission to the program and are advised to do so after completing Program in Computing 10B (petitions should be filed in the Student Affairs Office). Students graduate with a bachelor's degree in their major and a specialization in Computing.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Molecular, Cell, and Developmental Biology offers Master of Arts (M.A.), Candidate in Philosophy (C.Phil.), and Doctor of Philosophy (Ph.D.) degrees in Molecular, Cell, and Developmental Biology.

Molecular, Cell, and Developmental Biology

Lower Division Courses

40. AIDS and Other Sexually Transmitted Diseases. (5) Lecture, five and one-half hours; experiential service learning, 30 minutes. Introduction to interdisciplinary debate surrounding personal and societal response to AIDS and other sexually transmitted diseases. P/NP or letter grading.

50. Stem Cell Biology, Politics, and Ethics: Teasing Apart Issues. (5) Lecture, three and one-half hours; discussion, 90 minutes. Developmental biology of various types of human stem cells. Important functional differences between embryonic, hematopoietic, and adult stem cells, as well as differences in their biomedical potentials. Discussion of history of debate surrounding embryos, as well as various social, ethical, political, and economic aspects of stem cell research. P/NP or letter grading.

60. Biomedical Ethics. (5) Lecture, three hours; discussion, one hour. Examination of importance of ethics in research and exploration of how and why bioethics is relevant to reproductive screening, policy formation, public regulation, and law. Provides foundation in traditional ethics, consideration of subcategories of bioethics, neuroethics, and eugenics, and how to apply ethics to contemporary issues in research and technology. P/NP or letter grading.

70. Genetic Engineering and Society. (4) Lecture, three hours; discussion, two hours. Designed for nonmajors. Not open to students with credit for Life Sciences 3 or 4. Basic principles of genetic engineering. Overview of genetic engineering techniques and relationship of genetic engineering to medicine, agriculture, and society. Emphasis on specific genetic engineering applications to generate discussion on its use in society. Letter grading.

80. Green World: Plant Biology for Now and Future. (5) Lecture, two and one half hours; laboratory, two hours. Designed for nonmajors. Basic principles of plant biology and introduction to techniques for manipulating plants for improved agriculture, sources of renewable clean energy, reclamation of deforested and nutritionally depleted soils, and biological factories to produce biodegradable plastics, antibodies, and other commodities. Underexploited agriculture crops also featured. P/NP or letter grading.

Upper Division Courses

100. Introduction to Cell Biology. (5) Lecture, three hours; discussion, one hour. Enforced requisites: Life Sciences 3, 4. Enforced corequisite: Chemistry 153A. Not open for credit to Molecular, Cell, and Developmental Biology majors or to students with credit for course M140 or 165A. Analysis of cell organization, structure, and function at molecular level. Cell membranes and organelles, membrane transport, cellular signaling, cytoskeleton and cell movement, intracellular trafficking, cell energetics. Letter grading.

104. Cell and Molecular Biology Laboratory. (6) Lecture, two hours; discussion, one hour; laboratory, eight hours. Enforced requisites: Life Sciences 3, 4. Limited to departmental majors. Introduction to methods in molecular biology. Topics include purification, manipulation, and analysis of DNA, RNA, and protein. Emphasis on computer sequence analysis and use of current literature. May not be repeated for credit. Letter grading.

120. Introduction to Plant Biology. (4) Lecture, three hours; discussion, two hours. Requisites: Life Sciences 3, 4. Introduction to plant biology, as well as to concepts and techniques in molecular biology and genetics. Letter grading.

138. Developmental Biology. (5) Lecture, three hours; discussion, one hour. Requisites: Life Sciences 3, 4. Cellular and molecular basis of animal embryology. Letter grading.

M140. Cell Biology: Cell Cycle. (5) (Same as Biological Chemistry M140.) Lecture, four hours; discussion, one hour. Requisites: Chemistry 14A, 14B, and 14BL, or 20A, 20B, and 20L, Life Sciences 3, 4. Not open for credit to students with credit for courses 165A and 165B. Satisfies premedical requirements. Eukaryotic cellular structures and biogenesis at molecular level. Biochemical and genetic analysis of cell cycle, signal transduction, and their involvement in development and cancer. Protein sorting and transport across cell membranes. Cytoskeletal components and cell-adhesion. Letter grading.

C141. Molecular Basis of Plant Differentiation and Development. (5) Lecture, three hours; discussion, one hour. Requisites: Life Sciences 1, 3, 4. In-depth study of basic processes of growth differentiation and development in plants and molecular mechanisms underlying these processes. Discussion of variety of plant systems, with focus on developing critical understanding of current experimental basis of research in this field. Concurrently scheduled with course C239. Letter grading.

142. Seminar: Topics in Developmental Biology. (2) Seminar, two hours. Requisite: course 138. Undergraduate seminar on topics in developmental biology. Reading and group discussions on current research. P/NP or letter grading.

143. Developmental Biology: Genetic Control of Organogenesis. (5) Lecture, three hours; discussion, one hour. Requisites: course 138, Life Sciences 3, 4. Cellular and molecular basis of animal embryology, with

primary emphasis on vertebrate organ development, but including pertinent material from *Drosophila* and other invertebrate model organisms. Letter grading.

144. Molecular Biology. (5) Lecture, three hours; discussion, one hour. Requisites: Life Sciences 3, 4. Not open for credit to students with credit for Chemistry 153B. Structure of genes and chromosomes; prokaryotic and eukaryotic replication and transcription; repair and recombination; RNA processing. Letter grading.

C150. Plant Communication. (4) Lecture, three hours; discussion, one hour. Enforced requisites: Life Sciences 3, 4. Most people think of plants as static organisms, yet they live in world of symbiosis and community. Plants change atmosphere, enrich soil, and communicate with insects, bacteria, and each other—Earth's ultimate symbiote. Just as science has revealed over time misconceptions about how things work at deeper level, scientists and economists now recognize that beyond obvious need to grow above-ground biomass for fuel production, we must better understand how to make that biomass in sustainable manner. Introductory course in chemical ecology and how natural compounds affect gene expression. Emphasis on role of natural compounds in plant/microbe, plant/plant, and plant/herbivore interactions; synopsis of principles of plant defense mechanisms and responses to microbial infections. Concurrently scheduled with course C250. P/NP or letter grading.

150L. Plant Communication Laboratory. (4) (Formerly numbered 120L.) Laboratory, four hours. Enforced requisite: course C150. Recommended: course 104 or Microbiology 103L or 121A. Introductory plant biology laboratory to give students hands-on experience doing experiments and making their own observations about plant biology. Letter grading.

155. Molecular Genetic Methods. (4) Lecture, two hours; discussion, one hour; laboratory, six hours. Recommended preparation: course 104. Designed for and limited to Molecular, Cell, and Developmental Biology majors for priority pass and first pass. Gene mapping and detection and analysis of gene variants by means of inheritance patterns. Letter grading.

CM156. Human Genetics. (4) (Same as Human Genetics CM156 and Microbiology CM156.) Lecture, three hours; discussion, two hours. Requisites: Life Sciences 3, 4. Application of genetic principles in human populations, with emphasis on cytogenetics, biochemical genetics, population genetics, and family studies. Lectures and readings in literature, with focus on current questions in fields of medical and human genetics and methodologies appropriate to answer such questions. Concurrently scheduled with course CM256. Letter grading.

162. Genetic Control of Animal Behavior. (5) Lecture, three hours; discussion, one hour. Enforced requisites: Life Sciences 4, two upper division molecular, cell, and developmental biology or neuroscience courses. How do worms decide whether something smells good or bad? What happens to brain of fruit fly when it is exposed to alcohol? How does fish embryo decide whether to respond to touch by swimming leisurely or rapidly escaping? Behavior of animals, including humans, is controlled by ensembles of neurons that together form neural circuits. Understanding how these circuits function is unifying goal of neurobiology. Physiological techniques have been used in past to investigate logic of neural circuits. Scientists now ask how genes make neural circuits work and use variety of cutting-edge genetic and molecular techniques. Survey of recent primary literature that applies these approaches to three models: olfaction in nematode worms, alcohol-induced behavior in fruit flies, and motor responses in zebrafish. Letter grading.

165A. Biology of Cells. (5) Lecture, three hours; discussion, one hour. Requisites: Chemistry 14D or 30B, Life Sciences 3. Not open for credit to students with credit for course 100 or M140. Molecular basis of cellular structure and function, with focus on each individual cellular organelle, as well as interaction of cells with extracellular environment and with other cells. Material presented in context of experimental questions and answers to incorporate concept of scientific

method and recent advances in cell biology research. Exposure in discussions to recent scientific articles that directly relate to information examined in lectures. Letter grading.

165B. Molecular Biology of Cell Nucleus. (5) Lecture, three hours; discussion, two hours. Requisites: course 165A, Chemistry 14D or 30B, Life Sciences 3, 4. Continuation of course 165A. Molecular biology of eukaryotic cell nucleus, with focus on structure, organization, replication, and repair of eukaryotic genome; eukaryotic gene expression, including transcription, translation, and transport; cell cycle and cancer. Study of advanced specialized topics to allow integrated approach to molecular cell biology. Material presented in context of experimental questions and answers to incorporate concept of scientific method and recent advances in cell biology research. Exposure in discussions to current literature that directly relates to information examined in lectures. Letter grading.

168. Stem Cell Biology. (5) Lecture, three hours; discussion, one hour. Enforced requisites: courses 138, 165A. Strongly recommended: courses 143, 165B (or Microbiology 132). State-of-art education of embryonic and adult stem cells and how these pluripotent/multipotent cells can be used to treat congenital defects, diseases, or injury in humans. Review of current knowledge of human and mouse embryonic stem cells and how they develop into various tissue types. Discussion of adult stem cells in hematopoietic, nervous, and other organ systems to provide examples of tissue-specific stem cells and their impact in human disease. Examination of various model organisms as examples of how model organisms have helped to discover fundamental principles in stem cell biology. How advances in cell and molecular biology and tissue engineering can be applied to use of stem cells in regenerative medicine. Ethical and legal issues related to stem cell research. Letter grading.

M170. Biochemistry and Molecular Biology of Photosynthetic Apparatus. (2 to 4) (Same as Chemistry CM170.) Lecture, two to three hours; discussion, zero to two hours. Requisites: Chemistry 153A and 153B, or Life Sciences 3, and Chemistry 153L. Recommended: Chemistry 153C, 154, Life Sciences 4. Light harvesting, photochemistry, electron transfer, carbon fixation, carbohydrate metabolism, pigment synthesis in chloroplasts and bacteria. Assembly of photosynthetic membranes and regulation of genes encoding those components. Emphasis on understanding of experimental approaches. P/NP or letter grading.

172. Genomics and Bioinformatics. (5) Lecture, three hours; discussion, one hour. Requisite: course 144 or 165B or Chemistry 153B or Microbiology 132. Genomics is study of complete repertoire of molecules in cells. Topics include human and yeast genomes and genetic approaches to study of function of individual genes, fundamental bioinformatics algorithms used to study relationship between nucleotide and protein sequences and reconstruction of their evolution, use of microarray technologies to measure changes in gene expression, analysis of microarray data including clustering and promoter analysis, proteomics topics including protein expression and interactions, epigenomic study of DNA methylation and chromatin modification, and systems biology, or computational approaches to integrating varied genomic data to gain more complete understanding of cellular biology. Letter grading.

C174A-C174D. Advanced Topics in Cell and Molecular Biology. (2 each) Lecture, two hours. Requisites: courses 100 or C139 or M140, 144, Life Sciences 4. Recent developments in fields of molecular, cell, and developmental biology. Concurrently scheduled with courses C222A-C222D. Letter grading:

C174A. Molecular Evolution. (2) Lecture, two hours. Requisites: courses 100 or C139 or M140, 144, Life Sciences 4. Current developments in field of molecular evolution. Constructing evolutionary trees at molecular level; formal testing of evolutionary hypotheses using sequencing data. Letter grading.

C174B. Molecular Biology of Cell Nucleus. (2) Lecture, two hours. Requisites: courses 100 or C139 or M140, 144, Life Sciences 4. Animal cell nucleus regulation of cell metabolism. Structure/function relationships, nuclear-cytoplasmic exchange, DNA replication and gene expression. Letter grading.

C174D. Molecular Biology of Extracellular Matrix. (2) Lecture, two hours. Requisites: courses 100 or C139 or M140, 144, Life Sciences 4. Recommended: course 138. Synthesis of key extracellular matrix proteins and their assembly into supramolecular structures. Interactions of matrix proteins with cells and their influence on tissue formation. Letter grading.

M175A-M175B-M175C. Neuroscience: From Molecules to Mind. (5-5-5) (Same as Neuroscience M101A-M101B-M101C, Physiological Science M180A-M180B-M180C, and Psychology M117A-M117B-M117C.) Lecture, four hours; discussion, 90 minutes. P/NP or letter grading:

M175A. Cellular and Systems Neuroscience. (5) Lecture, four hours; discussion, 90 minutes. Requisites: Chemistry 14C or 30A (14C may be taken concurrently), Life Sciences 2, Physics 1B or 1BH or 6B or 6BH. Not open for credit to students with credit for Physiological Science 111A. For Physiological Science majors only, grade of C- or better is required to proceed to Physiological Science 111B. Cellular neurophysiology, membrane potential, action potentials, and synaptic transmission. Sensory systems and motor system; how assemblies of neurons process complex information and control movement. P/NP or letter grading.

M175B. Molecular and Developmental Neuroscience. (5) Lecture, four hours; discussion, 90 minutes. Requisites: course M175A (or Neuroscience M101A or Physiological Science M180A or Psychology M117A) or Physiological Science 111A or Psychology 115, Life Sciences 3, 4. Molecular biology of channels and receptors: focus on voltage dependent channels and neurotransmitter receptors. Molecular biology of supramolecular mechanisms: synaptic transmission, axonal transport, cytoskeleton, and muscle. Classical experiments and modern molecular approaches in developmental neurobiology. P/NP or letter grading.

M175C. Behavioral and Cognitive Neuroscience. (5) Lecture, four hours; discussion, 90 minutes. Requisite: course M175A (or Neuroscience M101A or Physiological Science M180A or Psychology M117A) or Physiological Science 111A or Psychology 115. Neural mechanisms underlying motivation, learning, and cognition. P/NP or letter grading.

M181. Biological Bases of Psychiatric Disorders. (4) (Same as Neuroscience M130, Physiological Science M181, Psychiatry M181, and Psychology M117J.) Lecture, three hours. Requisite: course M175A (or Neuroscience M101A or Physiological Science M180A or Psychology M117A) or Physiological Science 111A or Psychology 115. Underlying brain systems involved in psychiatric symptoms and neurological disorders, including schizophrenia, depression, bipolar disorder, obsessive/compulsive disorder. Provides basic understanding of brain dysfunctions that contribute to disorders and rationales for pharmacological treatments. P/NP or letter grading.

187A. Principles and Practices of Genomic Research. (5) (Formerly numbered Life Sciences 187A.) Lecture, one hour; laboratory, six hours; research group meeting, two hours. Enforced requisite: Life Sciences 4. Course 187A is enforced requisite to 187B, which is enforced requisite to 187C. Not open for credit to students with credit for former Life Sciences 187A. Opportunity to participate in research in annotation of sequenced eukaryotic genome. Undergraduate student researchers start research in groups of two as members of course 187 research team, in which students conduct cutting-edge research in genomic biology, biotechnology, and bioinformatics. May not be repeated for credit. Letter grading.

187B. Principles and Practices of Genomic Research. (4) (Formerly numbered Life Sciences 187B.) Laboratory, six hours; research group meeting, three hours. Enforced requisite: course 187A or former Life Sciences 187A. Not open for credit to students with credit for former Life Sciences 187B. Designed for un-

dergraduate students interested in continuation of their own original research started in course 187A. Opportunity to continue, refine, and complete research on annotation of sequenced eukaryotic genome. Experienced undergraduate student researchers mentor incoming students to become successful members of course 187 research team and to participate in reading, discussing, and presenting original published scientific papers in field of genomics. May not be repeated for credit. Letter grading.

187C. Principles and Practices of Genomic Research. (4) (Formerly numbered Life Sciences 187C.) Laboratory, six hours; research group meeting, three hours. Enforced requisite: course 187B or former Life Sciences 187B. Not open for credit to students with credit for former Life Sciences 187C. Designed for undergraduate students interested in publishing original research started in courses 187A and 187B and in leading and coordinating research team. Opportunity to refine, complete, and publish research on annotation of sequenced eukaryotic genome. Advanced experienced undergraduate student researcher also coordinates research team and sets goal for research project plan for term. May not be repeated for credit. Letter grading.

190A-190B-190C. Joint Research Colloquia. (1-1-1) Seminar, two hours. Corequisite: course 198A or 198B or 198C or 199 or 199A or 199B. Limited to juniors/seniors. Designed to bring together students undertaking supervised tutorial research in model systems in joint laboratory meeting/seminar setting with one or more departmental faculty members whose laboratories are working on same or related model systems. Discussion and presentation of student work or related work in discipline to encourage more sophisticated understanding of most current topics in research fields of students or fields using related model organisms. P/NP or letter grading. **190A.** Plant Model Systems; **190B.** Invertebrate Model Systems; **190C.** Vertebrate Model Systems.

191. Variable Topics Research Seminars: Molecular, Cell, and Developmental Biology. (2) Seminar, two hours. Designed for junior/senior departmental majors. Intended for students with strong commitment to pursue graduate studies in molecular, biochemical, physiological, and biomedical fields. Weekly variable topics course with reading, discussion, and presentation of paper selected from current literature. May be repeated once for credit. P/NP or letter grading.

192A. Undergraduate Practicum in Molecular, Cell, and Developmental Biology. (4) Seminar, three hours. Limited to junior/senior Molecular, Cell, and Developmental Biology majors. Training and supervised practicum for advanced undergraduate students. Students assist in preparation of materials and development of innovative programs under guidance of faculty members in small course settings. Consult Undergraduate Office for further information. May not be applied toward course requirements for Molecular, Cell, and Developmental Biology major. May be repeated once for credit. P/NP or letter grading.

192B. Undergraduate Practicum: CityLab. (2) Seminar, two hours. Limited to juniors/seniors in any life sciences major. CityLab training and supervised practicum for advanced undergraduate students. Students assist in preparation of materials and development of innovative programs under guidance of faculty members in small course settings. May not be applied toward course requirements for Molecular, Cell, and Developmental Biology major. May be repeated once for credit. P/NP or letter grading.

193. Journal Club Seminars: Molecular, Cell, and Developmental Biology. (1) Seminar, two hours. Corequisite: course 198A or 198B or 198C or 199 or 199A or 199B or 199C. Limited to juniors/seniors. Development of in-depth understanding of and ability to discuss current literature in field of students' own research. May be repeated for credit. P/NP grading.

194A. Research Group Seminars: Molecular, Cell, and Developmental Biology. (1) Seminar, two hours. Corequisite: course 198A or 198B or 198C or 199 or 199A or 199B or 199C. Limited to juniors/seniors. Involvement in laboratory's weekly research

group meeting to encourage student participation in research and to stimulate progress in specific research areas. Discussion of use of specific research methods and current literature in field or of research of faculty members or students. May be repeated for credit. P/NP or letter grading.

194B. Research Group Seminars: Current Topics in Biomedical Sciences. (2) Seminar, two hours. Limited to juniors/seniors in research traineeships or those who have strong commitment to pursue graduate studies in molecular, biochemical, physiological, or biomedical fields. Weekly presentation and discussion of paper selected from current literature. May be repeated for credit. Letter grading.

198A-198D. Honors Research in Molecular, Cell, and Developmental Biology. (4 each) Tutorial, 16 hours. Requisite: course 104. Limited to junior/senior Molecular, Cell, and Developmental Biology majors. Development and completion of comprehensive research project and honors thesis under direct supervision of approved faculty member to broaden and deepen students' knowledge of some phase of molecular, cell, and developmental biology. Must be taken for at least three terms and for total of 12 units. Individual contract required. In Progress (198A) and letter (198B) grading. Report on progress must be presented to undergraduate adviser each term 198 course is taken. Letter (198C, 198D) grading.

199. Special Studies Directed Research in Molecular, Cell, and Developmental Biology. (2 to 4) Tutorial, six to 12 hours. Preparation: submission of written proposal to department for approval by appropriate term deadline. Proposal to be developed in consultation with instructor, outlining research study to be undertaken. Requisites: course 104, Life Sciences 3, 4. Limited to juniors/seniors. Department majors may enroll with sponsorship from department faculty members or preapproved outside faculty members. Other junior/senior life sciences majors may enroll only with department faculty sponsors. Supervised individual research under guidance of faculty mentor. Studies to involve laboratory research, not literature surveys or library research. At end of term culminating paper describing progress of project and signed by student and instructor must be presented to department. May be repeated for credit. Individual contract required. Letter grading.

199A-199D. Directed Research in Molecular, Cell, and Developmental Biology. (2 to 4 each) Tutorial, 12 hours. Preparation: minimum 3.0 grade-point average in major. Requisites: course 104, Life Sciences 3, 4. Course 199A is requisite to 199B, which is requisite to 199C, which is requisite to 199D. Limited to juniors/seniors. Department majors may enroll with sponsorship from department faculty members or preapproved outside faculty members. Other junior/senior life sciences majors may enroll only for research projects in laboratories with department faculty sponsors. Supervised individual research under guidance of faculty mentor. Culminating research project designed to broaden and deepen students' knowledge of some phase of molecular, cell, and developmental biology. Must be taken for at least two terms and for total of at least 8 units. Individual contract required. In Progress (199A) and letter (199B) grading. Students may elect to enroll in additional research through courses 199C and 199D (letter grading). Report on progress must be presented to department each term 199A through 199D course is taken.

Graduate Courses

M220. Cell, Developmental, and Molecular Neurobiology. (6) (Formerly numbered CM220.) (Same as Neurobiology M200B and Neuroscience M201.) Lecture, six hours. Fundamental topics concerning cellular, developmental, and molecular neurobiology, including intracellular signaling, cell-cell communication, neurogenesis and migration, synapse formation and elimination, programmed neuronal death, and neurotropic factors. Letter grading.

C222A-C222D. Advanced Topics in Cell and Molecular Biology. (2 each) Lecture, two hours. Requisites: courses 100 or C139 or M140, 144, Life Sciences 4. Recent developments in fields of molecular, cell, and developmental biology. Concurrently scheduled with courses C174A-C174D. Letter grading:

C222A. Molecular Evolution. (2) Lecture, two hours. Requisites: courses 100 or C139 or M140, 144, Life Sciences 4. Current developments in field of molecular evolution. Constructing evolutionary trees at molecular level; formal testing of evolutionary hypotheses using sequencing data. Original research proposal required. Letter grading.

C222B. Molecular Biology of Cell Nucleus. (2) Lecture, two hours. Requisites: courses 100 or C139 or M140, 144, Life Sciences 4. Animal cell nucleus regulation of cell metabolism. Structure/function relationships, nuclear-cytoplasmic exchange, DNA replication and gene expression. Original research proposal required. Letter grading.

C222D. Molecular Biology of Extracellular Matrix. (2) Lecture, two hours. Requisites: courses 100 or C139 or M140, 144, Life Sciences 4. Recommended: course 138. Synthesis of key extracellular matrix proteins and their assembly into supramolecular structures. Interactions of matrix proteins with cells and their influence on tissue formation. Original research proposal required. Letter grading.

224. Molecular Basis of Vascular Biology. (4) Lecture, four hours. Requisites: Life Sciences 3, 4. Developmental and pathological aspects of vascular biology. Presentation and discussion of key questions of vascular biology with mechanistic viewpoint. Major emphasis on experimental approaches and current research in field. Introduction to several model systems along with presentation of specific topic. Basic information provided as to how this knowledge is obtained in laboratory using variety of experimental approaches and model organisms. Letter grading.

228. Prokaryotic and Eukaryotic Gene Systems. (2) Lecture, two hours. Presentations concerning current experimental approaches in study of DNA replication, organization, transcription, and translation. S/U or letter grading.

M230B. Structural Molecular Biology. (4) (Same as Chemistry M230B.) Lecture, three hours; discussion, one hour. Requisites: Mathematics 3C, Physics 6C. Selected topics from principles of biological structure; structures of globular proteins and RNAs; structures of fibrous proteins, nucleic acids, and polysaccharides; harmonic analysis and Fourier transforms; principles of electron, neutron, and X-ray diffraction; optical and computer filtering; three-dimensional reconstruction. S/U or letter grading.

M230D. Structural Molecular Biology Laboratory. (2) (Same as Chemistry M230D.) Laboratory, 10 hours. Corequisite: course M230B. Methods in structural molecular biology, including experiments utilizing single crystal X-ray diffraction, low angle X-ray diffraction, electron diffraction, optical diffraction, optical filtering, three-dimensional reconstruction from electron micrographs, and model building. S/U or letter grading.

M234. Genetic Control of Development. (4) (Same as Biological Chemistry M234.) Lecture, four hours. Topics at forefront of molecular developmental biology, including problems in oogenesis and early embryogenesis, pattern formation, axis determination, nervous system development, cellular morphogenesis, and cell-cell and cell-matrix interactions. S/U or letter grading.

C239. Molecular Basis of Plant Differentiation and Development. (5) Lecture, three hours; discussion, one hour. Requisites: Life Sciences 1, 3, 4. In-depth study of basic processes of growth differentiation and development in plants and molecular mechanisms underlying these processes. Discussion of variety of plant systems, with focus on developing critical understanding of current experimental basis of research in this field. Concurrently scheduled with course C141. Preparation and presentation of term paper, in addition to other coursework, required of graduate students. Letter grading.

M240. Cytokines and Reproductive Biology. (2) (Same as Microbiology M240.) Lecture, 90 minutes; discussion, one hour. Overview of current progress on research in cytokines and other immune system molecules in reproductive biology. S/U or letter grading.

242. Topics in Neurobiology. (4) Lecture, three hours. Requisite: course 171. Selected current problems in neurobiology discussed in depth, with emphasis on analysis of original papers. May be repeated for credit. Letter grading.

C250. Plant Communication. (4) Lecture, three hours; discussion, one hour. Enforced requisites: Life Sciences 3, 4. Most people think of plants as static organisms, yet they live in world of symbiosis and community. Plants change atmosphere, enrich soil, and communicate with insects, bacteria, and each other—Earth's ultimate symbiote. Just as science has revealed over time misconceptions about how things work at deeper level, scientists and economists now recognize that beyond obvious need to grow above-ground biomass for fuel production, we must better understand how to make that biomass in sustainable manner. Introductory course in chemical ecology and how natural compounds affect gene expression. Emphasis on role of natural compounds in plant/microbe, plant/plant, and plant/herbivore. Interactions; synopsis of principles of plant defense mechanisms and responses to microbial infections. Concurrently scheduled with course C150. S/U or letter grading.

254. Seminar: Plant Morphogenesis. (2) Seminar, two hours. S/U or letter grading.

255. RNA Editing. (4) Lecture, two hours; discussion, one hour. Preparation: knowledge of molecular biology and molecular genetics. Discussion of diverse set of novel RNA modification phenomena known as RNA editing. Topics include U insertion/deletion type of editing in trypanosome mitochondria, C to U substitution editing in apo B mRNA and plant mitochondria, C insertion editing in Physarum mitochondria, etc. Discussion of mechanism, function, and evolution of these phenomena. S/U grading.

CM256. Human Genetics. (4) (Same as Human Genetics CM256 and Microbiology CM256.) Lecture, three hours; discussion, two hours. Requisites: Life Sciences 3, 4. Application of genetic principles in human populations, with emphasis on cytogenetics, biochemical genetics, population genetics, and family studies. Lectures and readings in literature, with focus on current questions in fields of medical and human genetics and methodologies appropriate to answer such questions. Concurrently scheduled with course CM156. Independent research project required of graduate students. Letter grading.

266A-266B-266C. Seminars: Development, Stem Cells, and Disease Mechanisms. (2-2-2) Seminar, two hours. Limited to graduate students. Advanced courses based on research papers on fundamental cellular mechanisms governing development and disease. Disease results from genetically determined or acquired deficits in cell and molecular processes; analysis of these processes in context of normal development indicates ways of dealing with corresponding disease. S/U grading.

M272. Stem Cell Biology and Regenerative Medicine. (4) (Same as Pathology M272.) Lecture, two hours; discussion, two hours. Designed for graduate students. Presentation of current knowledge of embryonic and adult stem cells and factors that regulate their growth and development. Major emphasis on how advances in cell and molecular biology and tissue engineering can be applied to use of stem cells in regenerative medicine. Bioethical and legal issues related to stem cell research. S/U or letter grading.

276. Seminar: Molecular Genetics. (2) Seminar, two hours. Topics vary each term. S/U or letter grading.

277. Seminar: Genetics. (2) Seminar, two hours. S/U or letter grading.

278. Seminar: Molecular Genetics of Development. (2) Seminar, two hours. Designed for graduate students. Topics vary from year to year, with focus on establishment of position and pattern during embryogenesis by interaction of signal transduction systems and transcription factors. S/U or letter grading.

281. Seminar: Molecular Biology. (2) Seminar, two hours. S/U or letter grading.

283. Seminar: Topics in Cell Biology. (2) Seminar, two hours. Discussion of various topics on biology of eukaryotic cells. Topics vary from year to year and include bioenergetics, motility, organelle DNA, membrane structure and function, oncogenic transformation, nuclear organization and function. S/U or letter grading.

284. Seminar: Structural Macromolecules. (2) Seminar, one hour; discussion, three hours. Presentation and discussion of current topics in extracellular active structural macromolecules—their synthesis, structure, and roles in cell and developmental biology. Letter grading.

286. Seminar: Plant Development. (2) Seminar, one hour; discussion, two hours. Preparation: one plant physiology course and at least one advanced undergraduate or graduate plant development or biochemistry course. Seminar on specific topics in plant development. Content varies each term. S/U grading.

289. Current Topics in Plant Molecular Biology. (2) Discussion, one hour. Recent research developments in field of plant molecular biology. Opportunities for graduate students to discuss individual research work. S/U grading.

292. Seminar: Molecular Evolution. (2) Seminar, three hours. Detailed analysis of current understanding of evolution of molecular sequences and structures. Letter grading.

295. Seminar: Molecular, Cell, and Developmental Biology. (2) Seminar, two hours. In-depth surveys of recent developments in molecular, cell, and developmental biology research. Reading and presentation of primary research articles to learn to critically evaluate research papers and to organize and present seminars on specific research topics. S/U or letter grading.

296. Advanced Topics in Molecular, Cellular, and Developmental Biology. (2) Discussion, three hours. Advanced study and analysis of current topics in cell, molecular, and developmental biology. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading.

297. Advances in Molecular Analysis of Plant Development and Plant/Microbe Interactions. (2) Discussion, two hours. Recent advances in plant molecular biology, with emphasis on control of gene expression both during plant development and in plant/microbe interactions. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Preparation for Teaching Molecular, Cell, and Developmental Biology in Higher Education. (2) Seminar, two hours. Designed for graduate students. Study of problems and methodologies in teaching molecular, cell, and developmental biology, including workshops, seminars, apprentice teaching, and peer observation. S/U grading.

596. Directed Individual (or Tutorial) Studies. (2 to 12) Tutorial, to be arranged. S/U grading.

597. Preparation for M.A. Comprehensive Examination or Ph.D. Qualifying Examinations. (2 to 12) Tutorial, to be arranged. May not be applied toward M.A. or Ph.D. course requirements. S/U grading.

598. M.A. Thesis Research and Writing. (2 to 12) Tutorial, to be arranged. S/U grading.

599. Ph.D. Dissertation Research and Writing. (2 to 12) Tutorial, to be arranged. S/U grading.

MOLECULAR, CELLULAR, AND INTEGRATIVE PHYSIOLOGY

*Interdepartmental Program
College of Letters and Science and
David Geffen School of Medicine*

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James G. Tidball, Ph.D., *Chair*

Faculty Administrative Committee

Mark A. Frye, Ph.D. (*Integrative Biology and Physiology*)
David L. Glanzman, Ph.D. (*Integrative Biology and Physiology, Neurobiology*)
Thomas J. O'Dell, Ph.D. (*Physiology*)
James G. Tidball, Ph.D. (*Integrative Biology and Physiology, Pathology and Laboratory Medicine*)
Yibin Wang, Ph.D. (*Anesthesiology, Physiology*)

Scope and Objectives

Physiology is the study of the functional processes that collectively constitute life. The studies usually employ quantitative analyses of normal life processes, of pathological defects in normal life processes, of model systems to clarify and test basic physiological principles, and of functional specializations of organisms that have evolved under the influence of differing selective forces. Thus, physiology contributes importantly to advances in knowledge both in the basic biological sciences and in biomedical sciences and provides an essential foundation for the practice of medicine.

The primary objective of the interdepartmental Molecular, Cellular, and Integrative Physiology Program is to train a new generation of physiologists who apply modern knowledge in molecular and cellular biology and systems physiology to important questions in organismic function. Students learn to conceptualize physiological questions across several levels of organization and to understand how research strategies incorporating each of the levels of analysis can be formulated. This approach to physiology education is responsive to the need for physiologists who can intellectually and technically span disciplines related to physiology that are typically separated.

Coursework consists of formal instruction in the most current information in molecular biology, cell biology, and the molecular and cellular foundations of physiology. In addition, students identify an area of emphasis in biophysics, cellular and molecular biology, or integrative/comparative physiology in which additional studies are pursued. The heart of the program, however, is the research that leads to the dissertation, which is performed under the guidance of

a faculty mentor. The program faculty includes more than 60 professors in the David Geffen School of Medicine and College of Letters and Science. Collectively they have been recently ranked by the National Research Council in the top five in the U.S. for their quality as an academic faculty.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degree

The Molecular, Cellular, and Integrative Physiology Program offers the Doctor of Philosophy (Ph.D.) degree in Molecular, Cellular, and Integrative Physiology.

Molecular, Cellular, and Integrative Physiology

Graduate Courses

M200G. Biology of Learning and Memory. (4) (Same as Neurobiology M200G, Neuroscience M220, and Psychology M208.) Lecture, four hours. Molecular, cellular, circuit, systems, neuroanatomy, theory, and models of learning and memory. Cross-disciplinary focus on learning and memory to provide integrative view of subject that emphasizes emerging findings that take advantage of novel groundbreaking models. Letter grading.

M215. Molecular and Cellular Foundations of Physiology. (5) (Same as Physiological Science M215.) Lecture, three hours; discussion, two hours. Application of molecular and cellular approaches to systems level questions. Basic foundation for study of major physiological systems, with emphasis on levels of organization from molecular to macroscopic. Letter grading.

248. Seminar: Molecular Basis of Physiological Function. (2) Seminar, two hours. Application of molecular approaches in investigation of physiological processes of biological systems. Critical thinking and experimental design strategies learned through primary literature review and in-class presentation/discussion. Letter grading.

249. Seminar: Pathogenic Mechanisms in Muscle Disease. (2) Seminar, two hours. Recent advances have been made in genetic identification of molecular basis of muscle disease, and some mechanisms involved have been elucidated. Focus on muscle diseases in which substantial mechanistic information has been obtained, including particular cellular locations and diseases associated with those locations. Topics include Duchenne muscular dystrophy, congenital muscular dystrophy, limb girdle dystrophy, Ullrich myopathy, and other forms of genetically inherited muscle disease. S/U grading.

250. Current Topics in Molecular, Cellular, and Integrative Physiology. (2) Seminar, two hours. Designed for molecular, cellular, and integrative physiology students. Reading, analysis, critique, and discussion of current research literature in field of molecular, cellular, and integrative physiology. Student presentation of assigned paper. Variable topics. May be repeated for credit. S/U grading.

290A-290B-290C. Tutorials. (4-4-4) Tutorial, two hours. Discussion, analysis, and critique of original research literature. Letter grading. **290A.** Cellular and Molecular Physiology; **290B.** Biophysics; **290C.** Integrative and Comparative Physiology.

296. Research Seminar. (2) Seminar, to be arranged. Review of literature, discussion of original research, and analysis of current topics in molecular, cellular, and integrative physiology. May not be applied toward Ph.D. course requirements. May be repeated for credit. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May not be applied toward Ph.D. course requirements. May be repeated for credit. S/U grading.

596. Directed Individual Study or Research. (2 to 10) Tutorial, to be arranged. May be repeated for credit. S/U or letter grading.

597. Preparation for Ph.D. Qualifying Examinations. (2 to 10) Tutorial, to be arranged. May not be applied toward Ph.D. course requirements. May be repeated for credit. S/U grading.

599. Research for Ph.D. Dissertation. (2 to 10) Tutorial, to be arranged. May not be applied toward Ph.D. course requirements. May be repeated for credit. S/U grading.

MOLECULAR TOXICOLOGY

*Interdepartmental Program
School of Public Health*

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Oliver Hankinson, Ph.D. (*Pathology and Laboratory Medicine*)

David E. Krantz, M.D., Ph.D. (*Psychiatry and Biobehavioral Sciences*)

Robert H. Schiestl, Ph.D. (*Pathology and Laboratory Medicine*)

Scope and Objectives

Faculty from a variety of departments and schools at UCLA, including Biological Chemistry, Chemistry and Biochemistry, Environmental Health Sciences, Epidemiology, Medicine, Molecular and Medical Pharmacology, and Pathology and Laboratory Medicine, have joined forces to create an interdisciplinary Ph.D. program in Molecular Toxicology that is administered through the School of Public Health.

Specialties within the program include, but are not limited to, neurotoxicology, immunotoxicology, reproductive and developmental toxicol-

ogy, genetic toxicology, toxicokinetics and metabolism, genetics and molecular biology, carcinogenesis, and environmental toxicology. There is a particular emphasis on mechanisms of toxicity, since it is now widely accepted that understanding mechanisms will provide the means for accurately determining risk.

New chemicals have been the basis for most of the technological developments during the past century, and there is no question that society has reaped enormous benefits from the creation and growth of the chemical industry. However, major health and environmental problems have also been the legacy of the synthesis of new chemical species. The discipline of toxicology, which seeks to characterize and elucidate the mechanisms of the problems related to exposure of chemical agents, has also developed from a purely descriptive to a mechanistic science whose objective is to understand the basis of toxin action, predict the toxicity of new chemical entities, and protect organisms from them. Toxicology has used the basic disciplines of chemistry, biochemistry, and cell biology to advance understanding of toxicological phenomena, and the growth of the sophistication of toxicology has paralleled the increase in knowledge derived from the basic chemical and biological sciences.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degree

The Molecular Toxicology Program offers the Doctor of Philosophy (Ph.D.) degree in Molecular Toxicology.

Molecular Toxicology

Upper Division Courses

M110A. Drugs: Mechanisms, Uses, and Misuse. (4) (Same as Pharmacology M110A.) Lecture, four hours (seven weeks); discussion, four hours (three weeks). Requisites: Life Sciences 2, 3. Introduction to pharmacology and toxicology for undergraduate students, emphasizing drug development and mechanisms of action of drugs and toxic agents. Letter grading.

197. Individual Studies in Molecular Toxicology. (2 to 4) Tutorial, four hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

211A-211B-211C. Molecular Toxicology Seminars. (1-1-1) Seminar, one hour twice per month. Seminar series which alternately features outside speakers and members of UCLA molecular toxicology community (students, postdoctoral fellows, and faculty) and deals with topics relevant to molecular toxicology. In Progress (211A, 211B) and S/U (211C) grading.

M241. Introduction to Chemical Pharmacology and Toxicology. (6) (Same as Pharmacology M241.) Lecture, six hours. Preparation: organic and biological chemistry. Designed for molecular and medical pharmacology students. Introduction to general principles of pharmacology. Role of chemical properties of drugs in their distribution, metabolism, excretion, and modes of action. S/U or letter grading.

M245. Laboratory in Toxicological Methods. (2) (Same as Environmental Health Sciences M245 and Pharmacology M234C.) Lecture, one hour; laboratory, four to five hours. Survey of experimental techniques used in study of toxic substances. Experiments conducted within known toxin to demonstrate its effects at molecular, cellular, and tissue levels. Presentation of principles of techniques and methods of data analysis at discussion session prior to laboratory. Letter grading.

M246. Molecular Toxicology. (4) (Same as Environmental Health Sciences M246.) Lecture, four hours. Enforced requisite: Environmental Health Sciences C240. Fundamental aspects of toxicology required for deep understanding of toxicological processes, with research-oriented outlook. Dissemination of information about important molecular toxicological topics to make students think about them from research perspective. Students learn about cutting-edge research areas of molecular toxicology, how to most optimally extract important information from research papers, how to critique papers, how to formulate alternative hypotheses for data in papers, how to formulate ideas for future research, and how to express their ideas effectively in oral settings. Letter grading.

296A-296G. Research Topics in Molecular Toxicology. (2 each) Research group meeting, two hours. Advanced study and analysis of current topics in molecular toxicology. Discussion of current research and literature in research specialty of faculty member teaching course. S/U grading:

296A. Chemical Toxicology.

296B. Molecular Carcinogenesis.

296C. Teratogenesis.

296D. Molecular Topics in Boron Biology.

296E. Germ Cell Cytogenetic/Genetic Biomarkers.

296F. Genetic Toxicology.

296G. Laboratory Analysis.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

596. Directed Individual Study or Research. (2 to 12) Tutorial, to be arranged. Individual guided studies under direct faculty supervision. May not be applied toward degree course requirements. May be repeated for credit. S/U or letter grading.

597. Preparation for Ph.D. Qualifying Examinations. (2 to 12) Tutorial, four hours. May not be applied toward degree course requirements. May be repeated for credit. S/U grading.

599. Ph.D. Dissertation Research. (8 to 12) Tutorial, to be arranged. May not be applied toward degree course requirements. May be repeated for credit. S/U grading.

MOVING IMAGE ARCHIVE STUDIES

*Interdepartmental Program
Graduate School of Education and
Information Studies and School of
Theater, Film, and Television*

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Nicholas K. Browne, Ed.D., *Chair*

Faculty Administrative Committee

Nicholas K. Browne, Ed.D. (*Film, Television, and Digital Media*)
Johanna R. Drucker, Ph.D. (*Information Studies*)
Allyson N. Field, Ph.D. (*Film, Television, and Digital Media*)
Jan-Christopher Horak, Ph.D. (*Film, Television, and Digital Media*)
Leah A. Lievrouw, Ph.D. (*Information Studies*)
Steven Ricci, M.A., Ph.D. (*Film, Television, and Digital Media*)

Scope and Objectives

The Moving Image Archive Studies M.A. is an interdepartmental degree program offered jointly by the Department of Information Studies in the Graduate School of Education and Information Studies and the cinema and media studies faculty of the Department of Film, Television, and Digital Media in the School of Theater, Film, and Television. The program is an intensive, specialized two-year course of study consisting of graduate seminars, directed studies, and an extensive practicum program, as well as special topic screenings, guest lectures, and technical demonstrations. The program is also affiliated with the UCLA Film and Television Archive.

The goal of the program is not merely training, but a broad education grounded in historical, critical, and theoretical study. The subject matter encompasses the aesthetics and history of film and television, the cultural responsibilities of selection and curatorship, access and programming for the public, collection management, cataloging and documentation, and technical aspects of preservation and restoration. Seminars and practica are taught by a combination of UCLA faculty members, academic scholars, top-level preservationists, and other archive specialists.

The program recognizes that traditional models of archival work have been redefined in recent years to emphasize moving image preservation as an ongoing process of activities along a continuum that includes curatorship, laboratory preservation, storage management, cataloging, and access. The program encourages familiarity with all these closely related archival functions and provides opportunities for specialization within them.

A key goal is to link theory with practice. The program embraces hands-on practica in archives, libraries, studios, and laboratories in the Los Angeles area, as well as nationally and internationally.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degree

The Moving Image Archive Studies Program offers the Master of Arts (M.A.) degree in Moving Image Archive Studies.

Moving Image Archive Studies

Graduate Courses

200. Moving Image Archiving: History, Philosophy, Practice. (4) Seminar, four hours. Introduction to historical development of moving image archives. Critical analysis of archival policies regarding collection development, access, exhibition, cataloging, preservation, and restoration. Introduction to principle models and methodologies of moving image archive practices from 1938 establishment of International Federation of Film Archives to the present, addressing practices such as collection development of classical, national, regional, and nonmainstream materials (small gauge formats, independent and amateur productions, new media); changing role of technology in preservation and restoration; ethics of moving image restoration; cataloging standards and documentation systems; classical and alternative models of archive administration and funding; cultural impact of public programming; research and publication supported by moving image archives; access, education, and archival productions. S/U or letter grading.

210. Moving Image Preservation and Restoration. (6) Seminar, four hours. Critical analysis of distinct models for archival preservation and restoration of moving image media. Examination and evaluation of current preservation standards for storage and duplication. Discussion of critical preservation problems such as nitrate deterioration, color fading, vinegar syndrome, and irreplaceable formats. Exploration of case studies of specific restoration projects through critical before and after studies, with focus on crucial ethical issues embedded within each technical and aesthetic decision facing restorers. Of special interest is question of whether it is possible and appropriate to speak of particular schools and/or philosophies of restoration. Range of key issues addressed, such as identification of original versus subsequent and multiple versions and theoretical and practical distinctions between different types of restoration. S/U or letter grading.

220. Archaeology of Media. (4) Seminar, four hours. History of moving image technologies. Examination of relationship between technological evolution and forms of moving image expression. Lectures combined with extensive presentations of full range of analog, video, and digital image types to train students to develop discerning eye required for professionals working in 21st-century moving image archive. In addition to study of specific technical developments such as new gauges, formats, color processes, aspect ratios, films stocks, and projection systems, exploration of larger economic and industrial forces behind them. Study of aesthetic consequences of specific production and exhibition innovations by

examining different types of images, genres, and narratives that accompany and influence passage of new technologies. S/U or letter grading.

230. Moving Image Cataloging. (4) Seminar, four hours. Introduction to methodologies and standards specific to moving image cataloging. Discussion and debate of continued application of Library of Congress subject headings and genres to cataloged moving image materials. Exposure to variety of indexing languages used today within online environments and practical training in application of cataloging principles to motion pictures and television programs. Survey of general theories and alternate documentation practices at work within field as well as specific cataloging rules established by FIAF for local and national moving image archives. Discussion of important issues of public access, exploring various methods and protocols for making collection-related information available through secondary and nonsystematic channels such as study guides, collection profiles, Websites, stand-alone databases, and exhibition catalogs. Letter grading.

240. Archival Administration. (4) Seminar, four hours. Day-to-day administration of moving image archives involves complex set of interrelated activities, including donor relations, deposit agreements, and application of copyright law; collection identification and cataloging; storage, conservation, and preservation of moving image materials; budget planning, fundraising, and grant writing; staff training and supervision; programming, education initiatives, and Internet access. Analysis of interrelationship between administrative policies, budgets, human resources, and overall archival goals. Through discussions with working archival professionals, exploration of these essential tasks with particular attention to rapidly changing paradigms brought about by migration of media into digital realm. S/U or letter grading.

250. Access to Moving Image Collections. (4) Seminar, four hours. Survey and analysis of policies and procedures used to provide access to moving image collections. Identification and exploration, through lecture and discussion, of three distinct modes of public access: traditional access, public exhibition, and proactive access. S/U or letter grading.

298. Special Topics in Moving Image Archive Studies. (2 to 4) Seminar, two to four hours. Variable topics related to scholarship and practice in moving image archive studies. Letter grading.

498. Individual Directed Studies: Practicum in Moving Image Archiving. (2 to 8) Tutorial, 12 hours. Hands-on experience at entry professional level in archive, library, information center, or media laboratory supervised by one archivist or other appropriately qualified professional and one program faculty member. S/U grading.

596. Directed Individual Study or Research. (2 to 6) Tutorial, four hours. Study or research in areas or subjects not offered as regular courses. S/U or letter grading.

MUSIC

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Roger Bourland, Ph.D., *Chair*

Professors

Roger Bourland, Ph.D.
Kenneth E. Burrell, B.A.
Vladimir Chernov, M.M.
Paul S. Chihara, Ph.D.

Juliana K. Gondek, M.M.
 Gary G. Gray, M.M.
 Gordon Henderson, M.M.E.
 Peter D. Kazaras, J.D.
 Ian Krouse, D.M.A.
 D. Thomas Lee, D.M.A.
 Jens H. Lindemann, M.M.
 Antonio Lysy
 Vitaly Margulis, M.M.
 Susan K. McClary, Ph.D.
 Donald Neuen, M.A.
 Movses Pogossian, D.M.A.
 Walter Poncé, D.M.A.
 Neal H. Stulberg, M.A.
 Guillaume B. Sutre, M.M.
 Robert Waiser, Ph.D.
 Robert S. Winter, Ph.D. (*Presidential Professor of Music and Interactive Arts*)

Professors Emeriti

Elaine R. Barkin, Ph.D.
 Paul E. Des Marais, M.A.
 Maurice Gerow, Ph.D.
 Frederick F. Hammond, Ph.D.
 Thomas F. Harmon, Ph.D.
 Henri Lazarof, M.F.A.
 Paul V. Reale, Ph.D.
 Jon Robertson, D.M.A.
 Roy E. Travis, M.A.

Associate Professors

Michael E. Dean, M.M.
 Frank Heuser, Ph.D.
 David S. Lefkowitz, Ph.D.

Senior Lecturers S.O.E.

Bess Karp, M.A., *Emerita*
 Sheridon W. Stokes
 Paul O. Tanner, Ph.D., *Emeritus*

Lecturer S.O.E.

Maureen D. Hooper, Ed.D., *Emerita*

Senior Lecturer

John L. Hall, M.M., *Emeritus*

Lecturers

Gloria C. Cheng
 Chris J. Cooper
 Johathan D. Davis, D.M.A.
 Margaret M. Flanagan Lysy
 Rakefet R. Hak, M.M.
 Kanae Matsumoto
 James T. Miller
 Lou Anne Neill, M.A.
 Richard O'Neil, M.A.
 Mitchell T. Peters, M.M.
 Jean-Louis Rodrigue
 Patrick R. Sheridan, M.A.
 John A. Steinmetz, M.A.

Adjunct Professors

Christopher Hanulik, B.M.
 Douglas H. Masek, D.M.A.

Adjunct Associate Professors

Christoph Bull, D.M.A.
 Mark C. Carlson, Ph.D.
 Jennifer Judkins, Ph.D.
 Jennifer L. Snow, D.M.A.
 Peter F. Yates, D.M.A.

Adjunct Assistant Professor

Judith I. Hansen, B.A.

Scope and Objectives

The Department of Music provides undergraduate and graduate training in Western classical music, with concentrations in composition, music education, and performance. The department is aligned with the Departments of Ethnomusicology and Musicology and aspires to promote productive collaboration between performance and scholarship, a cross-cultural

global understanding of the art of music, and preparatory training for a broad range of careers in music after students graduate.

The four-year Bachelor of Arts curriculum in Music is a classically oriented, balanced program of practical, theoretical, and historical studies, with related performance and academic studies in non-Western music. The major, designed for students who want to combine fine musicianship with academic excellence, is based on a core curriculum of theory, history, analysis, and individual and group performance. Given in the context of a liberal education, this provides a foundation for an academic or professional career and affords valuable cultural background.

At the graduate level, specialized studies leading to the degrees of Master of Arts and Doctor of Philosophy are offered in composition; specialized studies leading to the degrees of Master of Music and Doctor of Musical Arts are offered in all classical solo instruments, voice, collaborative piano, and conducting.

Students interested in a concentration in music history and literature should consider the majors in Music History and Musicology offered through the College of Letters and Science; those interested in a concentration in world music should consider the major in Ethnomusicology offered through the School of the Arts and Architecture.

Undergraduate Study

The Music major is a designated capstone major. Students learn about the real world with respect to putting on concerts. Through preparation for and execution of their senior recitals, students demonstrate a level of proficiency appropriate for their role in the recitals and their understanding of performance practices appropriate to the repertory being performed, as acquired in previous coursework and through research. Students also display their ability to assemble an effective program in terms of pacing and variety and demonstrate requisite stage presence along with an ability to communicate with their audience in performance.

Music B.A.

Capstone Major

Admission

All applicants for admission and change of major are required to pass an audition in their principal performing medium.

Preparation for the Major

Required (for all concentrations except music education): Music 20A, 20B, 20C, with grades of C or better; 12 units from courses 60A through 65; two years (12 units) of performance organizations (courses C90A through 90N). Students taking string, woodwind, brass, or percussion lessons must select from Music C90E, 90F, C90G, 90M (Fall Quarter only), or 90N; students taking vocal lessons must select from C90A, 90D, or 90L; students taking keyboard or guitar lessons may choose from C90A

through 90N. Students must participate in a minimum of two different organizations over the course of their stay at UCLA. In addition, they are required to take one college year—or at least one course at level three—of French, German, Italian, or Spanish, which may be used to fulfill the school language requirement.

Music Education: Music 20A, 20B, 20C, with grades of C or better; 12 units from courses 60A through 65; three years (18 units) of performance organizations (courses C90A through C90G and 90M Fall Quarter only); Ethnomusicology 20A or 20B or 20C. In addition, students are required to take one college year—or at least one course at level three—of French, German, Italian, or Spanish, which may be used to fulfill the school language requirement.

The Major

Required (for all concentrations): Music 120A, 120B, 120C, 140A, 140B, 140C, with grades of C or better, and courses selected from one of the concentrations listed below.

Composition: A minimum of 41 upper division units, including Music 104A or 104B, 106A, 106B, 116, 123A, 123B, 123C, C176, and at least 8 elective units selected from courses 104A or 104B (if not already taken), 117, 118A, 118B, additional terms of 123A, 123B, 123C, 124A or 124B or 124C (if not already taken), 197, Ethnomusicology 117, 136A, C136B, 146, C156A, 156B, 157, 158A, 158B, 158C, 160, 170, 181. A capstone senior recital, to be preceded by one capstone scoring course (Music 124A or 124B) and to include at least 30 minutes of original music, is also required (exceptions by petition only).

Music Education: A minimum of 37 upper division units, including Music 100A, 100B, 100C, 110, 111A, 111B, 114A, 114B, 114C, 114D and 114F or 119, 114E, 114G through 114I, 116, 117 or 118A, and three courses from 160A through 165. A capstone senior recital is also required.

Performance: Twelve units in performance instruction from Music 160A through 165 (including junior and senior recital requirements); 4 units of chamber ensembles (Music C175); 4 units of elective courses from 106B, 116, 117, 118A, 118B, 197, Music History 130, 135A, 135B, 135C, 191A through 191G, Ethnomusicology M108A, 108B, 120A, 120B, 121, 170; and one upper division elective course in music. During each term in which students take private lessons, they must participate in a performance organization for a letter grade. Students taking string, woodwind, brass, or percussion lessons must select from Music C90E, 90F, C90G, 90M (Fall Quarter only), or 90N; students taking vocal lessons must select from C90A, 90D, or 90L; students taking keyboard or guitar lessons may choose from C90A through 90N.

Theory: Six courses selected in consultation with a faculty adviser.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Music offers the Master of Music (M.M.) degree, Doctor of Musical Arts (D.M.A.) degree, and Master of Arts (M.A.), Candidate in Philosophy (C.Phil.), and Doctor of Philosophy (Ph.D.) degrees in Music.

Music

Lower Division Courses

1A-1B. Fundamentals of Music. (4-4) Lecture, three hours; discussion, two hours. Designed for nonmusic majors. P/NP or letter grading. **1A.** Introduction to elements of music: pitch and rhythm symbols, meter and time signatures, notation, scales, intervals, and chord structure. **1B.** Requisite: course 1A. Diatonic harmony; four-part writing, including inversions, sevenths, secondary dominants, and modulation; organization of melody and accompaniment; simple analysis; sight-singing and ear training.

3. Preparatory Music Theory for Music Majors. (4) Lecture, four hours; laboratory, one hour. Limited to Music majors. Course for Music majors in music fundamentals, including musicianship, theory, and terminology. Letter grading.

4A-4B-4C. Basic Musicianship. (2-2-2) Studio, three hours. Class instruction in elementary ear training and keyboard skills. P/NP or letter grading.

5. Beginning Voice Class. (2) Studio, four hours; outside practice and preparation, two hours. Not open to voice majors. Correct singing techniques, including vocal mechanism, posture and breathing, musical warm-ups, optimal vocal production, diction, and performance delivery to be put into practice in classroom study, vocal exercises, and performances. Final recital with piano accompaniment required. May be repeated for maximum of 12 units with a grade of C in each course. Letter grading.

7. Understanding Movie Music. (4) Lecture, four hours; outside study, eight hours. Musical experience helpful, but not required. Brief historical survey of film music, with strong emphasis on recent development: Japanese animation, advertising, and MTV, as well as computer tools and digital scoring methods. Designed to inspire and inform those interested in movie music. Offered in summer only. P/NP or letter grading.

8G. Graduate Piano Sight-Reading. (2) Studio, two hours. Limited to graduate students. Designed to help entering graduate students remedy entrance deficiencies, to be cleared by examination. May be repeated. S/U grading.

15. Art of Listening. (5) Lecture, three hours; discussion, one hour; outside study, 11 hours. Acquisition of listening skills through direct interaction with live performance, performers, and composers. Relationship of listening to theoretical, analytical, historical, and cultural frameworks. Music as aesthetic experience and cultural practice. P/NP or letter grading.

16. Hollywood Musical and American Dream. (4) Lecture, three hours; discussion, one hour. Examination of composers, writers, and filmmakers whose creative efforts changed how world came to view American dream. Full features and music clips illustrate American life as seen through Hollywood musicals. P/NP or letter grading.

20A. Music Theory I. (4) Lecture, two hours; discussion, six hours. Preparation: passing score on departmental examination. Theory: species counterpoint through fifth species; description of triads and inversions. Musicianship: interval recognition; fixed-do solfège of diatonic melodies; one-part dictation of diatonic melodies; two-part dictation of small-compass, note-against-note melodies; simple rhythmic dictation; use of treble, alto, and bass clefs. P/NP or letter grading.

20B. Music Theory II. (4) Lecture, four hours; discussion, four hours. Requisite: course 20A with grade of C or better. Theory: diatonic harmony through secondary dominants and diminished sevenths; modulations to dominant and relative keys; writing of four-part chorales; style composition in baroque dance forms; introduction to figured bass notation. Musicianship: harmonic dictation, including secondary dominants and diminished sevenths, but not modulations; more advanced two-part dictation; chromatic one-part dictation; more advanced sight-singing; keyboard (three-part open score in homophonic textures, introduction to tenor clef). P/NP or letter grading.

20C. Music Theory III. (4) Lecture, four hours; discussion, four hours. Requisite: course 20B with grade of C or better. Theory: chromatic harmony including development of tonality, 1800 to 1850; appropriate analysis and style composition. Musicianship: advanced sight-singing; two-part contrapuntal dictation; keyboard harmony (harmonic sequences in major and minor keys); reading in open score of four homophonic parts in four clefs. P/NP or letter grading.

60A-65. Undergraduate Instruction in Performance. (2 each) Studio, one hour. Limited to Music majors (all freshman/sophomore majors, and junior/senior majors not in performance specialization). Individual instruction. Students must perform in one practicum during academic year. Grades are assigned by applied instructor in Fall and Winter Quarters and by jury examination in Spring Quarter. May be repeated for credit. P/NP or letter grading. **60A.** Violin; **60B.** Viola; **60C.** Cello; **60D.** String Bass; **60E.** Harp; **60F.** Classical Guitar; **60G.** Viola da gamba; **60K.** Lute; **61A.** Flute; **61B.** Oboe; **61C.** Clarinet; **61D.** Bassoon; **61E.** Saxophone; **62A.** Trumpet; **62B.** French Horn; **62C.** Trombone; **62D.** Tuba; **63.** Percussion. **64A.** Piano; **64B.** Organ; **64C.** Harpsichord; **65.** Voice.

80A. Beginning Keyboard. (4) Laboratory, five hours; preparation/practice, seven hours. Simple keyboard skills together with basic aspects of music theory and its practical application to keyboard: sight-reading, tonality, chords, scales, cadences, simple compositions, and improvisations. Offered in summer only. P/NP or letter grading.

80F. Beginning Guitar Class. (4) Laboratory, five hours; preparation/practice, seven hours. Introduction to guitar techniques, accompanying, and arranging for guitar; coverage of note reading and tablature. Offered in summer only. P/NP or letter grading.

80V. Vocal Technique for Beginners. (4) Laboratory, six hours; preparation/practice, six hours. Voice instruction for singers at beginning to intermediate level. Exploration of fundamentals of vocal technique, including overview of basics of proper breath control, resonance, care of voice, diction, and interpretation. Beginning vocal repertoire used as vehicle for understanding these concepts. Offered in summer only. P/NP or letter grading.

80W. Woodwind Technique for Beginners. (4) Laboratory, six hours; preparation/practice, six hours. Woodwind instruction designed to give students knowledge of fundamental concepts and techniques of saxophone, clarinet, oboe, bassoon, and flute. Offered in summer only. P/NP or letter grading.

M87. Special Courses in Music. (5) (Same as Ethnomusicology M87 and Music History M87.) Lecture, four hours; discussion, four hours. Limited to undergraduate Ethnomusicology, Music, and Music History majors. Study and analysis of current and/or special topics in ethnomusicology, music, and music history taught by resident and visiting faculty members. May be repeated for credit with topic and instructor change. Letter grading.

C90A. UCLA Chorale. (2) Activity, four hours. Preparation: audition. Select mixed ensemble of 50 to 60 voices performing choral music appropriate for concert choral ensemble, with emphasis on music after 1700. May be repeated for credit without limitation. May be concurrently scheduled with course C480. P/NP or letter grading.

90B. University Chorus. (2) Activity, two hours. Non-audition mixed chorus of 50 to 150 voices performing medium- and concert-length choral works from baroque to present. University Chorus performs only as part of Choral Union, large chorus made up of all choral ensembles. May be repeated for credit without limitation. P/NP or letter grading.

90C. Chamber Singers. (2) Activity, three hours. Preparation: audition. Select mixed ensemble of 16 to 20 voices performing chamber choral music of all periods, with emphasis on Renaissance and baroque music. May be repeated for credit without limitation. P/NP or letter grading.

90D. Opera Workshop. (2) Activity, six hours. Preparation: audition. Rehearsal and performance of scenes and complete operas, as well as repertoire, stage movement, and foreign language diction coaching. May be repeated for credit without limitation. P/NP or letter grading.

C90E. Symphony Orchestra. (2) Activity, four hours. Preparation: audition. Group performance of symphonic literature, as well as orchestral accompaniment for operatic and major choral works. May be repeated for credit without limitation. May be concurrently scheduled with course C481. P/NP or letter grading.

90F. Symphonic Band. (2) Activity, two hours. Preparation: audition. Group performance of instrumental music scored for band. May be repeated for credit without limitation. P/NP or letter grading.

C90G. Wind Ensemble. (2) Activity, four hours. Preparation: audition. Group performance of concert literature for wind ensemble. May be repeated for credit without limitation. May be concurrently scheduled with course C482. P/NP or letter grading.

90L. Music Theater Workshop. (2) Activity, six hours. Preparation: audition. Rehearsal and performance of scenes and complete musical theater productions, including repertoire and stage movement coaching. May be repeated for credit without limitation. P/NP or letter grading.

90M. Marching and Varsity Bands. (2) Activity, four hours. Preparation: audition. Group performance of special band arrangements for football and basketball games as well as special events. May be repeated for credit without limitation. P/NP or letter grading.

90N. Jazz Ensemble. (2) Activity, three hours. Preparation: audition. Group performance of jazz and popular music in ensembles of 20 to 30 instruments. May be repeated for credit without limitation. P/NP or letter grading.

90P. Alexander Technique. (2) Lecture, four hours; outside preparation and practice, two hours. Limited to Music majors. Introduction to principles of Alexander technique. Study of musician's postural attitude at instrument. Designed to help instrumentalists and vocalists prevent injuries and performance anxiety. May be repeated with consent of instructor. Letter grading.

C90Q. Piano/Keyboard Accompanying. (2) (Formerly numbered 90Q.) Activity, four hours; outside study, two hours. Collaboration with large ensembles, instrumentalists, and/or vocalists in role of accompanists. Performance includes, but is not limited to, lessons, rehearsals, special studio performance projects, master classes, concerts, auditions, juries, and recitals. May be repeated for credit without limitation. Concurrently scheduled with course C484. P/NP or letter grading.

90R. Guitar Accompanying. (2) Activity, four hours; outside study, two hours. Collaboration with instrumentalists and/or vocalists in role of accompanists. Performance includes, but is not limited to, lessons, rehearsals, special studio performance projects, master classes, concerts, auditions, juries, and recitals. May be repeated for credit without limitation. P/NP or letter grading.

90S. Harp Accompanying. (2) Activity, four hours; outside study, two hours. Collaboration with instrumentalists and/or vocalists in role of accompanists. Performance includes, but is not limited to, lessons, rehearsals, special studio performance projects, master classes, concerts, auditions, juries, and recitals. May be repeated for credit without limitation. P/NP or letter grading.

M90T. Early Music Ensemble. (4) (Same as Music History CM90T.) Activity, four hours. Preparation: audition. Group performance of Western vocal and instrumental music from historical periods prior to 1800. Early instruments may be used at instructor's discretion. May be repeated for credit without limitation. P/NP or letter grading.

Upper Division Courses

100A-100B-100C. Music in American Education. (4-4-4) Lecture, four hours; laboratory, one hour. Requisites: courses 20A, 20B, 20C, 116, 120A, 120B, 120C, Music History 26A, 26B, 26C. Critical study and analysis of philosophy, history, organization, curriculum, and literature of music programs for elementary and secondary schools in American education. Each course may be taken independently for credit. Letter grading. **100A.** General Music; **100B.** Choral Music; **100C.** Instrumental Music.

104A. Modal Counterpoint. (3) Lecture, three hours. Requisite: course 120C (accelerated section). In-depth exploration of styles and techniques of counterpoint of 15th and 16th centuries through writing and analysis of important forms of period, including species, canon, free counterpoint, cantus, firmus, point of imitation, motet, ricercare, etc. Letter grading.

104B. Special Topics in Counterpoint. (3) Lecture, three hours. Requisite: course 120C (accelerated section). In-depth exploration of polyphonic styles and textures since 1750, with emphasis on late-19th- and 20th-century modes of expression, through writing and analysis. Letter grading.

106A. Orchestration I. (4) Discussion, three hours. Requisites: courses 120C (accelerated section), 123C. Ranges and characteristics of instruments, with exercises in scoring. P/NP or letter grading.

106B. Orchestration II. (4) Discussion, three hours. Requisites: courses 106A, 120C (accelerated section), 123C. Scoring and analysis for ensembles and full orchestra. P/NP or letter grading.

110. Learning Approaches in Music Education. (4) Lecture, two hours; activity, two hours; outside study, eight hours. Introduction to concepts and skills central to teaching music. Exploration of three modes of music learning: learning through notation, oral transmission, and imitation. Study of improvisation and communal composition using clarinet and guitar. Evaluation of experiences in context of major learning theories. Letter grading.

111A. Technology in Music Education I. (1) Laboratory, three hours. Requisite or corequisite: course 20A. Provides music educators with tools and knowledge necessary to use appropriate computer hardware and software for purposes of music sequencing, arranging, and scoring, with emphasis on applications that are appropriate for use in public and/or private schools for levels K-12 and higher education. Activities include familiarization with computer systems and software, computer-assisted music notation and publication, and development of basis sequencing techniques. Letter grading.

111B. Technology in Music Education II. (1) Laboratory, three hours. Requisite: course 111A. Introduction to instructional uses of computers in music classrooms, with emphasis on practical information necessary to intelligently purchase and implement microcomputers in schools, including training in arranging, multimedia production, and classroom instruction techniques. Additional topics include teacher-based administrative functions (grading, communications, research, databases, financial management). Letter grading.

112. Guided Field Experiences in Music Education. (1) Field studies, three hours. Initial field experiences for students preparing to teach and earn single subject certification in music. Novice teachers work under direct guidance of UCLA music education faculty members and practicing public school instructor to develop and deliver instruction in K-12 settings. P/NP grading.

114A-114I. Study of Instrumental and Vocal Techniques. (1 each) Studio, three hours. Requisite or corequisite: course 20A. Applied studies in basic performance techniques and tutorial materials. Each of courses 114A through 114I may be repeated once for credit. Letter grading. **114A.** High Strings; **114B.** Low Strings; **114C.** Flute and Saxophone; **114D.** Double Reeds; **114E.** Trumpet and Trombone; **114F.** Horn and Tuba; **114G.** Snare Drum; **114H.** Other Percussion; **114I.** Voice.

116. Introduction to Conducting. (2) Lecture, three hours. Requisites: courses 20A, 20B, 20C, 120A. Fundamentals of conducting, including basic skills, techniques, analysis, and repertoire. P/NP or letter grading.

117. Study and Conducting of Instrumental and Choral Literature. (2) Lecture, three hours. Requisite: course 116. Study and practice of conducting both instrumental and choral repertoire. In addition to further development of conducting gestures, focus on score study techniques, rehearsal techniques, style, and interpretation as applied to choral and instrumental repertoire. Letter grading.

118A-118B. Advanced Study and Conducting of Choral and Instrumental Literature. (2-2) Lecture, one hour; studio, two hours. Requisites: courses 116, 117. Detailed investigation of musical styles, performance practices, and rehearsal techniques. Each course may be repeated once for credit. P/NP or letter grading. **118A.** Choral; **118B.** Instrumental.

119. Vocal Techniques for Music Education. (2) Laboratory, three hours; outside study, three hours. Introduction to art of teaching voice, including anatomy of singing instrument, biomechanics of singing, diagnosis and correction of faults, health and care of voice, and instructional techniques. Letter grading.

120A. Music Theory IV. (4) Lecture, four hours; discussion, four hours. Preparation: passing score on departmental first-year examination. Requisite: course 20C with grade of C (2.0) or better. Theory: baroque counterpoint including chorale prelude; two-part invention; exposition and first modulation of three-part invention; canonic principles; analysis of inventions, canons, and fugues. Musicianship: sight-singing of extended chromatic melodies; advanced harmonic dictation (diatonic and chromatic); keyboard harmonization of modulating melodies; elementary score reading. P/NP or letter grading.

120B. Music Theory V. (4) Lecture, four hours; discussion, four hours. Requisite: course 120A with grade of C (2.0) or better. Theory: advanced chromatic harmony including development of harmony from 1850; analytical projects; style composition. Musicianship: advanced score reading; advanced harmonic dictation; preparation for departmental examination. P/NP or letter grading.

120C. Music Theory VI. (4) Lecture, four hours; discussion, two hours; listening, two hours. Requisite: course 120B with grade of C (2.0) or better. 20th-century harmonic language, including nonfunctional harmony, polytonality, free atonality, serialism, and minimalism. P/NP or letter grading.

121. Special Topics in 20th-Century Music. (4) Lecture, three hours. Requisites: courses 20A, 20B, 20C, 120A, 120B, 120C. In-depth study of certain aspects of 20th-century music ranging from individual composers and schools to ideological or stylistic concerns. May be repeated once for credit. P/NP or letter grading.

C122. Speculative Music Theory. (4) Discussion, three hours. Requisites: courses 20A, 20B, 20C, 120A, 120B, 120C. Techniques of tonal coherence studied through analysis and compositional exercises in styles of given periods. May be repeated once for credit. May be concurrently scheduled with course C222. P/NP or letter grading.

123A-123B-123C. Composition. (4-4-4) Lecture, three hours. Requisites: courses 20A, 20B, 20C, 120A, 120B, 120C. Course 123A is requisite to 123B, which is requisite to 123C. Designed for composition students. Vocal and instrumental composition in smaller forms, including style composition and 20th-century techniques. Each course may be repeated once for credit, but first year must be taken in sequence. P/NP or letter grading.

124A. Scoring for Symphony Orchestra. (4) Discussion, three hours. Requisites: courses 106B, 120C (accelerated section), 123C. Practical applications in scoring for symphony orchestra. Preparation and production of parts and full scores. At least one reading by UCLA Philharmonia Orchestra scheduled. Letter grading.

124B. Scoring for Wind Ensemble. (4) Discussion, three hours. Requisites: courses 106B, 120C (accelerated section), 123C. Practical applications in scoring for large wind ensembles. Preparation and production of score and parts. May include percussion. At least one reading by UCLA Wind Ensemble scheduled. Letter grading.

124C. Scoring and Arranging for Choral Ensemble. (4) Discussion, three hours. Requisites: 106B, 120C (accelerated section), 123C. Practical applications in scoring and arranging for choral ensembles, including a capella as well as chorus with instruments. Preparation and production of score and parts. At least one reading by UCLA Chorale or other choral group scheduled. Letter grading.

M131. Development of Latin Jazz. (4) (Same as Ethnomusicology M131.) Lecture, four hours; discussion, one hour. Survey of historical and stylistic development of musical style referred to today as Latin jazz. P/NP or letter grading.

136A-136B-136C. Historical Survey of Music Theater. (4-4-4) Lecture, four hours; discussion, one hour. Historical survey of major works from music theater, tracing development of art form from its European beginning to American music theater of today. P/NP or letter grading. **136A.** Early Forms to 1900; **136B.** 1900 to 1945; **136C.** 1945 to 1975.

140A-140B-140C. History and Analysis of Western Music. (5-5-5) Lecture, four hours; discussion, one hour. Survey of Western music; examination of representative compositions within their cultural contexts and development of analytical methods appropriate to each repertory. Letter grading. **140A.** To 1700. Enforced requisite: course M87. Students must receive grade of C or better to proceed to next course in sequence. **140B.** 1700 to 1890. Enforced requisite: course 140A with grade of C or better. **140C.** 1890 to Present. Enforced requisite: course 140B with grade of C or better.

160A-165. Undergraduate Instruction in Performance for Performance Specialist. (2 each) Studio, one hour. Limited to junior/senior Music majors who have been accepted by audition into performance specialization. Individual instruction. Students must perform in noon concert once during their junior year and must present full recital in their senior year. Grades are assigned by applied instructor in Fall and Winter Quarters and by jury examination in Spring Quarter. May be repeated for credit. P/NP or letter grading. **160A.** Violin; **160B.** Viola; **160C.** Cello; **160D.** String Bass; **160E.** Harp; **160F.** Classical Guitar; **160G.** Viola da gamba; **160K.** Lute; **161A.** Flute; **161B.** Oboe; **161C.** Clarinet; **161D.** Bassoon; **161E.** Saxophone; **162A.** Trumpet; **162B.** French Horn; **162C.** Trombone; **162D.** Tuba; **163.** Percussion; **164A.** Piano; **164B.** Organ; **164C.** Harpsichord; **165.** Voice.

C167. Selected Topics in Keyboard Literature. (2) Lecture, two hours. Enforced corequisite: one course from 64A, 64B, 64C, 164A, 164B, or 164C. In-depth study of selected topics in keyboard literature, concentrating on problems of performance through analysis, historical and comparative studies, and actual performances by participants. May be concurrently scheduled with course C267. P/NP or letter grading.

174. Vocal Diction. (2) Lecture, two hours; outside study, four hours. Designed for Music majors. Sounds of language as applied to singing, including use of In-

ternational Phonetic Alphabet, translation of art song texts, and application to student's current vocal repertoire. Background in each language encouraged. P/NP or letter grading.

C175. Chamber Ensembles. (2) Activity, two hours. Preparation: audition. Students must be at advanced level of their instrument to participate. Applied study of performance practices of literature appropriate to ensembles. Students may enroll in two sections per term; total of 12 units may be applied toward degree requirements. May be concurrently scheduled with course C485. P/NP or letter grading.

C176. Electronic Music Composition. (4) Lecture, three hours; laboratory, three hours. Preparation: advanced experience and accomplishment in serious composition (art music), two years of music theory. Limited to music composition majors. Exercises in electroacoustic orchestration, meta-pitch composition, notation software (Sibelius), sequencing and film scoring software (Logic), text collages (ProTools), and final project. May be concurrently scheduled with course C226. P/NP or letter grading.

CM182. Music Industry. (4) (Same as Ethnomusicology CM182 and Music History CM186.) Lecture, four hours; outside study, eight hours. Limited to Ethnomusicology, Music, and Music History majors. Examination of influence of music industry on way music is created, performed, listened to, evaluated, and used today. Historical approach taken, beginning with music published in 18th century and continuing through development of audio recordings to MTV and popular music today. Concurrently scheduled with course CM282. Letter grading.

C185. Historical and Philosophical Foundations of Music Education. (4) Lecture, three hours. Preparation: completion of undergraduate music education specialization. Development of music education in U.S. according to established schools of thought. May be concurrently scheduled with course C225. P/NP or letter grading.

188. Special Courses in Music. (4) Lecture, three hours; outside study, nine hours. Special topics in music for undergraduate students taught on experimental or temporary basis. May be repeated for credit. P/NP or letter grading.

195. Community or Corporate Internships in Music. (2 to 4) Tutorial, six hours. Limited to juniors/seniors. Internship in supervised setting in community agency or business. Students meet on regular basis with supervising instructor and submit periodic reports of their work experiences. May be repeated for maximum of 8 units. Individual contract with supervising faculty member required. P/NP grading.

197. Individual Studies in Music. (2 or 4) Tutorial, one hour. Preparation: 3.0 grade-point average. Limited to seniors. Individual intensive study in music, with scheduled meetings to be arranged between faculty member and student. Tangible evidence of mastery of subject matter (research project) required. May be repeated for maximum of 8 units. Individual contract required. P/NP or letter grading.

Graduate Courses

M201. Repertory and Analysis. (2) (Same as Musicology M201.) Seminar, two hours. Prerequisite or corequisite: Musicology 200A. Exploration of defined repertory through readings and analysis. Specific topics vary. May be repeated for credit. S/U grading.

202. Analysis for Performers. (4) Lecture, three hours; outside study, nine hours. Designed for graduate students. Survey of analytical techniques and approaches required for professional performers, including phrase structure, harmonic rhythm and prolongation, small and large forms, theories of musical coherence, and understanding of styles. Letter grading.

203. Musical Terminology. (4) Lecture, three hours; outside study, nine hours. Designed for graduate music students. Survey of musical terminology intended to clarify performance and interpretation of vocal and instrumental music in European tradition. Coverage of terms in Italian, French, and German. Letter grading.

204. Music Bibliography for Performers. (4) Lecture, three hours; outside study, nine hours. Designed for graduate music performance students. Survey of general bibliographic techniques in music, with emphasis on materials for performing musicians. Letter grading.

C222. Speculative Music Theory. (4) Discussion, three hours. Designed for graduate music students. Techniques of tonal coherence studied through analysis and compositional exercises in styles of given periods. May be repeated once for credit. May be concurrently scheduled with course C122. S/U or letter grading.

C225. Historical and Philosophical Foundations of Music Education. (4) Lecture, three hours. Designed for graduate students. Development of music education in U.S. according to established schools of thought. May be concurrently scheduled with course C185. Additional assignments, as well as evidence of greater depth of study, required of graduate students. S/U or letter grading.

C226. Electronic Music Composition. (4) Lecture, three hours; laboratory, three hours. Preparation: advanced experience and accomplishment in serious composition (art music), two years of music theory. Designed for graduate students. Limited enrollment. Exercises in electroacoustic orchestration, meta-pitch composition, notation software (Sibelius), sequencing and film scoring software (Logic), text collages (ProTools), and final project. May be concurrently scheduled with course C176. S/U or letter grading.

251. Seminar: Orchestration. (4) (Formerly numbered 251A.) Seminar, three hours. Advanced orchestration for large ensembles; analysis of orchestral literature. Letter grading.

252. Seminar: Composition. (4) (Formerly numbered 252A.) Seminar, three hours. Compositional projects for varying acoustic instrumental and vocal ensembles. Students expected to perform their compositions from sketches at piano or present notation files of work-in-progress with playback file, where appropriate. Performance of completed works in graduate composition concerts by UCLA student performers. S/U or letter grading.

253. Seminar: Special Topics in Composition and Theory. (4) (Formerly numbered 251B.) Seminar, three hours. Intensive exploration of specialized aspects of composition. May be repeated for credit. S/U or letter grading.

254. Advanced Music Analysis: Pre-Tonal Music. (4) Seminar, three hours. Designed to provide graduate composition students with in-depth exposure to complex and rich works of late Middle Ages through dawn of baroque era. Exploration of analytical techniques and methods not commonly used in analysis of works of tonal and post-tonal periods, and approaches to musical structures used by composers before modern tonal harmonic syntax had fully developed. Letter grading.

255. Advanced Music Analysis: Tonal Music. (4) Seminar, three hours. Discussion of theoretic approaches to and analysis of selected works of common practice era. Analysis of assigned pieces using various theoretic approaches discussed and presentation of analyses in class. Letter grading.

256. Advanced Music Analysis: Post-Tonal Music. (4) Seminar, three hours. Designed for graduate music students. Discussion of theoretic approaches to and analysis of selected works of 20th or 21st century. Analysis of assigned pieces using various theoretic approaches discussed and presentation of analyses in class. Letter grading.

260A. Seminar: Composition for Motion Pictures and Television. (6) Seminar, three hours; laboratory, three hours. Practical experience in composing for commercial movies. Difference between underscore and source music and discussion of surrealistic effect when they merge, as in MTV, dream sequences, or montages. Study of three principal areas of filmmaking—preproduction, production (shooting), and postproduction. Examples from classic movies and discussion of their scores. Composition of actual cues for acoustic instru-

ments coordinated to picture to be term project. Separate cues involve dialogue, melodrama, comedy, chase, memory montage, and tension. Letter grading.

260B. Seminar: Composition for Motion Pictures and Television. (6) Seminar, three hours; laboratory, three hours. Focus on task of completing one entire score for television episode or original student film. Discussion of recent television shows. Composition of one original title song and short cues to someone else's song required. Term assignment involves student orchestra recording to picture, designed to approximate actual conditions of completing professional Hollywood assignment, from spotting to scoring. Letter grading.

261A-261F. Problems in Performance Practices. (4 each) Seminar, three hours; outside study, nine hours. Limited to graduate performance students. Investigation of primary source readings in performance practices as related to period; analytical reports and practical applications in class demonstrations. May be repeated for credit. Letter grading. **261A.** Medieval; **261B.** Renaissance; **261C.** Baroque; **261D.** Classical; **261E.** Romantic; **261F.** Contemporary.

C267. Selected Topics in Keyboard Literature. (2) Lecture, two hours. Enforced corequisite: course 464A or 464B or 464C. In-depth study of selected topics in keyboard literature, concentrating on problems of performance through analysis, historical and comparative studies, and actual performances by participants. May be concurrently scheduled with course C167. S/U or letter grading.

270A-270G. Seminars: Music Education. (6 each) Seminar, three hours. May be repeated for credit without limitation. S/U or letter grading. **270A.** History; **270B.** Non-Western Musics; **270C.** Curriculum Innovations; **270D.** Tests and Measurements; **270E.** Choral Literature; **270F.** Instrumental Literature; **270G.** General Topics.

271. Music and Electronic Technology. (4) Lecture, four hours; media laboratory, one hour. Designed for graduate music performance students. Survey of music and its place in emerging digital world of arts, including training in arranging and multimedia production. Letter grading.

CM282. Music Industry. (4) (Same as Ethnomusicology CM288 and Musicology CM288.) Lecture, four hours; outside study, eight hours. Limited to Ethnomusicology, Music, and Musicology majors. Examination of influence of music industry on way music is created, performed, listened to, evaluated, and used today. Historical approach taken, beginning with music published in 18th century and continuing through development of audio recordings to MTV and popular music today. Concurrently scheduled with course CM182. Letter grading.

290. Composition Forum. (2) Seminar, two hours. Weekly forum to present professional composers of range of mediums, including large ensemble vocal and/or instrumental works, chamber music, electronic music, and film/television, as guest lecturers. Letter grading.

292. Seminar: Special Topics in Music. (4) Seminar, three hours. Exploration of topics in music through variety of approaches that may include projects, performances, readings, discussions, research papers, and oral presentations. Topics announced in advance. May be repeated for credit. S/U or letter grading.

330. Introduction to Orff Schulwerk. (2) Lecture, 10 hours; discussion, five hours; laboratory, 15 hours. Intended for teachers of music, church musicians, and music therapists who have had little or no previous experience with Orff Schulwerk. Introduction to Orff Schulwerk, including history, philosophy, and teaching processes of this approach to music instruction for children. Offered in summer only. S/U or letter grading.

S331A-S331B-S331C. Orff Schulwerk Training Courses. (4-4-4) Lecture, 10 hours; discussion, five hours; laboratory, 15 hours. Prerequisite: course 330. Course S331A is requisite to S331B, which is requisite to S331C. In-depth courses in teaching of Orff Schulwerk approach to music instruction for children. Students who successfully complete each course are eli-

gible for certification at that level through American Orff Schulwerk Association. Offered in summer only. S/U or letter grading. **S331A.** Level I (Beginning); **S331B.** Level II (Intermediate); **S331C.** Level III (Advanced).

S341. Conducting for High School and College Band/Wind Ensemble Teachers. (2) Lecture, 25 hours. Comprehensive view of current trends in band/wind ensemble programs, including nonverbal communication, conducting, and rehearsal techniques. Study of new and recently published literature and discussions of administration of band/wind ensemble programs. May be repeated for credit without limitation. Offered in summer only. S/U or letter grading.

S342. Contemporary Marching Band. (1) Lecture, 12 hours. Innovative approaches to marching band programs for high school and college teachers, including creative approaches to charging and drill design and use of microcomputers. May be repeated for credit without limitation. Offered in summer only. S/U or letter grading.

343. Effective and Creative String Teaching. (2) Lecture, 24 hours. Comprehensive course for teachers of string classes and string orchestras at elementary, junior high, and high school levels. Topics include development of instructional techniques for violin, viola, cello, and bass; critical examination of current pedagogical materials; and reading sessions of recently published music for string orchestra. May be repeated for credit without limitation. Offered in summer only. S/U or letter grading.

343L. Effective and Creative String Teaching Laboratory. (1) Laboratory, 12 hours. Exploration of string orchestra, ensemble, and chamber music literature appropriate for elementary, junior high, and high schools. Examination of this literature in reading and discussion sessions. May be repeated for credit without limitation. Offered in summer only. S/U or letter grading.

S345. Symposium on Art of Choral Music. (2) Lecture, 25 hours. Symposium for college, high school, and junior high school choral directors on development of practical techniques for solving real challenges in choral conducting and teaching. Topics include innovative choral methods, choral conducting, vocal pedagogy, voice classification, and survey of standard and current choral literature. Offered in summer only. S/U or letter grading.

350A. Introduction to Computer-Assisted Instruction of Music. (2) Lecture, three hours; laboratory, two hours. Introduction to instructional uses of computers in music classroom, with emphasis on practical information necessary to intelligently purchase and implement microcomputers in schools. Courseware to be experienced and reviewed, jargon defined and illustrated, and practical hands-on experience obtained. May be repeated for credit without limitation. Offered in summer only. S/U or letter grading.

350B. Exploration of MIDI Computer Resources: Keyboards and Synthesizers. (2) Lecture, two hours; laboratory, three hours. Creative use of MIDI-based synthesizers under computer control. Exploration of available hardware resources allied with various software sequencing packages. Use of software for computer-based music printing. Hands-on experience. May be repeated for credit without limitation. Offered in summer only. S/U or letter grading.

371. Marching Band in Secondary Education. (2) Lecture, two hours. Study of contemporary marching band as component of music curriculum in secondary education, including current approaches, practices, and problems associated with marching bands, as well as historical perspective. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

401. New Music Forum. (2) Tutorial/laboratory, two hours. Preparation: one year of graduate study in music at UCLA. Interactive course in preparation and

performance of premiere work especially composed for graduate performer or performers by graduate composer at UCLA. Letter grading.

460A-465. Graduate Instruction in Performance. (6 each) Studio, one hour; performance laboratory/outside study, 17 hours. Limited to graduate performance students. Individual instruction. Intensive study and preparation of musical literature in area of specialization. May be repeated for credit. Letter grading. **460A.** Violin; **460B.** Viola; **460C.** Cello; **460D.** String Bass; **460E.** Harp; **460F.** Classical Guitar; **460G.** Viola da gamba; **460K.** Lute; **461A.** Flute; **461B.** Oboe; **461C.** Clarinet; **461D.** Bassoon; **461E.** Saxophone; **462A.** Trumpet; **462B.** French Horn; **462C.** Trombone; **462D.** Tuba; **463.** Percussion; **464A.** Piano; **464B.** Organ; **464C.** Harpsichord; **464D.** Fortepiano; **465.** Voice.

469. Instrumental Pedagogy. (4) Lecture, three hours; outside study and preparation, nine hours. Preparation: advanced proficiency on one musical instrument. Designed for graduate music students. Study of art of teaching musical instruments, including discussions of philosophy of teaching, learning process itself, and teaching of musical interpretation. Individualized study of various considerations, such as physical/technical aspects and pedagogical repertoire, peculiar to teaching student's primary instrument. Letter grading.

470. Opera Studio for Graduate Students. (4) Laboratory, six hours. Designed for graduate students. Performance techniques and repertoire for graduate students in opera. S/U or letter grading.

471. Vocal Pedagogy. (4) Lecture, three hours; discussion, one hour. Preparation: advanced proficiency in voice. Designed for graduate music students. Study of teaching techniques for voice, including thorough investigation of vocal mechanism and its use, plus study of noted teachers of past and present. Further emphasis on practical teaching experience in class. Letter grading.

472. Master Class in Opera. (6) Studio, three hours; outside study, 15 hours. Limited to graduate performance students. Intensive study and preparation of opera literature. May be repeated for credit. S/U or letter grading.

475. Master Class in Conducting. (6) Studio, three hours; outside study, 15 hours. Limited to graduate performance students. Intensive study and preparation of musical literature in specialized field of conducting. May be repeated for credit. S/U or letter grading.

C480. UCLA Chorale. (2) Activity, four hours. Preparation: audition. Designed for M.M. and D.M.A. students. Select mixed ensemble of 50 to 60 voices performing choral music appropriate for concert choral ensemble, with emphasis on music after 1700. May be repeated for credit without limitation. May be concurrently scheduled with course C90A. Letter grading.

C481. Symphony Orchestra. (2) Activity, four hours. Preparation: audition. Group performance of symphonic literature, as well as orchestral accompaniment for operatic and major choral works. May be repeated for credit without limitation. May be concurrently scheduled with course C90E. Letter grading.

C482. Wind Ensemble. (2) Activity, four hours. Preparation: audition. Designed for M.M. and D.M.A. students. Group performance of concert literature for wind ensemble. May be repeated for credit without limitation. May be concurrently scheduled with course C90G. Letter grading.

C484. Piano/Keyboard Accompanying. (2) Activity, four hours; outside study, two hours. Collaboration with large ensembles, instrumentalists, and/or vocalists in role of accompanists. Performance includes, but is not limited to, lessons, rehearsals, special studio performance projects, master classes, concerts, auditions, juries, and recitals. May be repeated for credit without limitation. Concurrently scheduled with course C90Q. Letter grading.

C485. Chamber Ensembles. (2) Activity, two hours. Preparation: audition. Students must be at advanced level of their instrument to participate. Applied study of performance practices of literature appropriate to ensembles. Students may enroll in two sections per

term; total of 12 units may be applied toward degree requirements. May be concurrently scheduled with course C175. Letter grading.

495. Introductory Practicum for Teaching Apprentices in Music. (2) Eight weekly two-hour seminar sessions, plus intensive training session during Fall Quarter registration week. Preparation: appointment as teaching apprentice in Music Department. Required of all new teaching apprentices. Special course dealing with problems and practices of teaching music at college level. May not be applied toward degree requirements. S/U grading.

496. Technology Seminar. (2) Seminar, two hours; laboratory, one hour; outside study, three hours. Introduction to departmental and campuswide technology resources, exploration of applications of technology in education, and development of means of using technology to assess and document teaching competence. S/U grading.

595A. Preparation of Master's Recital. (6) Tutorial, three hours. Limited to graduate master's program in performance students. Intensive study and preparation of final master's recital, normally taken in lieu of 400-level lessons during final recital term. S/U grading.

595B. Preparation of Final Doctoral Recital. (6) Tutorial, three hours. Preparation: advancement to candidacy for D.M.A. degree. Intensive study and preparation of final D.M.A. recital, normally taken in lieu of 400-level lessons during final recital term. S/U grading.

596A. Directed Individual Studies in Orchestration and Composition. (2, 4, or 6) Tutorial, to be arranged. Only 4 units may be applied toward M.A. or M.M. degree requirements. May be repeated for credit. S/U or letter grading.

596C. Directed Individual Studies in Music Education. (2, 4, or 6) Tutorial, to be arranged. Only 4 units may be applied toward M.A. or M.M. degree requirements. May be repeated for credit. S/U or letter grading.

596D. Directed Individual Studies in Performance Practices. (2 to 12) Tutorial, to be arranged. Only 4 units may be applied toward M.A. or M.M. degree requirements. May be repeated for credit. S/U or letter grading.

597. Preparation for Master's Comprehensive Examination or Ph.D. Qualifying Examinations. (2 or 4) Tutorial, to be arranged. S/U grading.

598. Guidance of M.A. Thesis. (4, 8, or 12) Tutorial, to be arranged. Only 4 units may be applied toward degree requirements. May be repeated for credit. S/U grading.

599. Guidance of Ph.D. or D.M.A. Dissertation. (4, 8, or 12) Tutorial, to be arranged. May be repeated for credit. S/U grading.

MUSICOLOGY

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Robert W. Fink, Ph.D., *Chair*
Tamara J.M. Levitz, Ph.D., *Vice Chair*

Professors

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Raymond L. Knapp, Ph.D.
Tamara J.M. Levitz, Ph.D.
Timothy D. Taylor, Ph.D.

Professors Emeriti

Murray C. Bradshaw, Ph.D.
Malcolm S. Cole, Ph.D.

Frank A. D'Accone, Ph.D.
 Marie Louise Göllner, Ph.D.
 Richard A. Hudson, Ph.D.
 Robert M. Stevenson, Ph.D.

Associate Professors

Elisabeth C. Le Guin, Ph.D.
 Mitchell B. Morris, Ph.D.

Assistant Professors

Olivia A. Bloechl, Ph.D.
 Nina S. Eidsheim, Ph.D.
 Elizabeth Randell Upton, Ph.D.

Scope and Objectives

The Department of Musicology provides students with a broad understanding of the history and culture of music. Courses cover virtually every period, style, and genre, including jazz and other popular musics. The department is aligned with the Departments of Ethnomusicology and Music and aspires to promote productive collaboration between performance and scholarship, a cross-cultural global understanding of the art of music, and preparatory training for a broad range of careers in music after students graduate.

Music history appeals to undergraduate students with musical backgrounds whose interests and principal career goals lie in areas other than professional performance. The undergraduate program prepares students for graduate programs in music and related fields and offers training within the broader context of the humanities.

The graduate program offers courses leading to the M.A. and Ph.D. degrees. It is designed to equip students to pursue careers not only in teaching but also in other areas that require bibliographical skills and training in research methodologies. The department provides teaching and research assistantships each year for qualified students.

Undergraduate Study

The Music History major is a designated capstone major. Undergraduate students who are not pursuing departmental honors must complete a senior thesis that demonstrates the skills and expertise they have acquired in earlier coursework. Students are expected to conceive and execute a project that identifies and engages with a problem within a specialized topic, identify and analyze appropriate primary sources and musical scores, and have a working knowledge of scholarly discourse relative to a specialized topic. Students present their work to other students and discuss and critique the work of their peers.

Music History B.A.

Capstone Major

Admission

The Music History program assumes that students have some musical background before entering UCLA. Although auditions are not required, prospective majors should be sufficiently competent on an instrument or in voice to participate in a performance group, as required by the program.

Preparation for the Major

Required: Music History 10A, 10B, 10C, 12W, and 6 units (three terms) of performance organizations selected from Ethnomusicology 91A through 91Z, Music C90A through 90M, Music History 28A through 28C, or CM90T. Enrollment in Music History 10A, 10B, and 10C requires taking the Music Theory Placement Examination administered by the Music Department.

Transfer Students

Transfer applicants to the Music History major with 90 or more units must complete one year of music theory prior to admission to UCLA. Experience in music performance is strongly recommended. Transfer students are required to take Music History 12W at UCLA.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Music History 125A through 125F, 187; one course from 160 through 185 or from 191A through 191G or 191P; one additional 4- to 5-unit upper division elective course in ethnomusicology, music, or music history (enrollment may be limited; check with the department or instructor); and one capstone research colloquium (course 190) and one capstone seminar (course 191T). Students may enroll in lessons from the Music Department, if instructors are available.

Each course applied toward the major must be taken for a letter grade (courses offered only on a P/NP grading basis are acceptable).

Honors Program

The honors program is designed for Music History majors who wish to carry out an extended independent research project that culminates in a departmental honors thesis of approximately 30 pages. The program gives qualified students the opportunity to work closely with individual professors on an in-depth supervised research and writing project.

All junior and senior Music History majors who have completed a minimum of four upper division music history courses with a departmental grade-point average of 3.7 or better and an overall GPA of 3.0 or better are eligible to apply. Normally, the thesis must be completed during Fall Quarter of the senior year.

To qualify for graduation with departmental honors, students must (1) complete all requirements for the major, (2) have a cumulative grade-point average of 3.7 or better in upper division courses in the department and an overall GPA of 3.0 or better, and (3) complete at least one quarter of Music History 198 (2 units) with a grade of A– or better on the resulting thesis.

To qualify for graduation with departmental highest honors, students must (1) complete all requirements for the major, (2) have a cumulative GPA of 3.9 or better in upper division courses in the department and an overall GPA of 3.65 or better, and (3) complete at least one

quarter of Music History 198 (2 units) with a grade of A or better on the resulting thesis.

Music History Minor

The Music History minor provides undergraduates with an overview of music history and the study of music. Students may select from a wide variety of undergraduate courses that range through the history of European and American music.

To enter the minor, students must have an overall grade-point average of 2.0 or better and file a petition with the department in 2443 Schoenberg Music Building. For further information, contact the department at (310) 206-5187.

Required Lower Division Courses (10 units): Two courses with grades of C or better.

Required Upper Division Courses (18 to 22 units): Music History 193A, 193B, one course from 160 through 185 (6 units), and two additional 4- to 6-unit upper division courses.

No more than two courses may be applied toward both this minor and a major or minor in another department or program.

Each minor course must be taken for a letter grade (courses offered only on a P/NP grading basis are acceptable), and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Musicology offers Master of Arts (M.A.), Candidate in Philosophy (C.Phil.), and Doctor of Philosophy (Ph.D.) degrees in Musicology.

Music History

Lower Division Courses

1. Introduction to Music History. (4) Lecture, four hours. Designed for Music History minors. Survey of issues and methods of music history and criticism for nonmajors. Letter grading.

3. Introduction to Classical Music. (5) Lecture, four hours; discussion, one hour. Survey of music of Western classical tradition, with emphasis on historical context, musical meanings, and creation of tradition itself. P/NP or letter grading.

5. History of Rock and Roll. (5) Lecture, four hours; discussion, one hour. Analysis of forms, practices, and meanings of rock and roll music, broadly conceived, from its origin to present. Emphasis on how this music has reflected and influenced changes in sexual, racial, and class identities and attitudes. Letter grading.

6GA-6GB. Musicianship for Musicology Graduate Students. (2-2) Seminar/laboratory, three hours. Designed to help entering graduate students remedy entrance deficiencies. S/U grading.

7. Film and Music. (5) Lecture, four hours; film viewing, two hours. History of music and cinema, particularly ways music is used to produce meanings in conjunction with visual image. P/NP or letter grading.

8. History of Electronic Dance Music. (5) Lecture, four hours. Survey of groove-based electrified dance music from its origins in 1960s' pop and soul to present, covering disco, house, techno, ambient, rave, and jungle. Emphasis on interaction of technology, musical structures, psychoactive drugs, and club cultures to induce altered states of musical consciousness; promise (versus reality of) political and spiritual transformation; electronic dance music as new art music. P/NP or letter grading.

9. American Popular Song. (4) Lecture, four hours. American popular music before advent of rock and roll in 1950s, with special emphasis on song tradition of Tin Pan Alley. P/NP or letter grading.

10A-10B-10C. Introduction to Music: History, Culture, Creativity. (5-5-5) Lecture, four hours; laboratory, three hours. Preparation: placement examination. Course 10A is enforced requisite to 10B, which is enforced requisite to 10C. Students must receive grade of C or better to proceed to next course in sequence. Introduction to study of music from three complementary perspectives: its history, relation to culture, and creative structuring. Lectures from musicologists, ethnomusicologists, and composers/theorists combined with small sections in which students develop wide range of musicianship skills. Organized around broad ideas (performance, simultaneity, time, place, and more) where creative and cultural implications are explored through analysis and discussion of broad repertoire of musical works spanning historical eras and global cultures. Compositional exercises, production of short compositions, and short papers dealing with historical and cultural issues required. Letter grading.

12W. Writing about Music. (5) Lecture, four hours; laboratory, one hour. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Emphasis on learning specific skills, incorporating technical description, historical contextualization, subjective reaction, and certain stylistic conventions necessary in writing about music. Satisfies Writing II requirement. Letter grading.

28A-28B-28C. Collegium Musicum. (2-2-2) Lecture, three hours. Preparation: ability to read music. Group performance of Western vocal and instrumental music. Some coordination with content of courses 26A, 26B, 26C. P/NP or letter grading. **28A.** Medieval Period; **28B.** Renaissance Period; **28C.** 17th and 18th Centuries.

60. American Musical. (5) Lecture, four hours; discussion, 90 minutes. Survey of American musical in 20th century, beginning with its roots in operetta, vaudeville, and Gilbert and Sullivan, and focusing on its connections to politics, technology, film, opera, and variety of popular musical styles, including Tin Pan Alley, jazz, and rock. P/NP or letter grading.

62. Mozart. (5) Lecture, four hours; discussion, one hour. Designed for students who do not read music. Life, works, and mythology of Wolfgang Amadeus Mozart, in context of both his age and our own. P/NP or letter grading.

63. Bach. (5) Lecture, four hours; discussion, one hour. Designed for undergraduate students. Life and works of Johann Sebastian Bach. P/NP or letter grading.

64. Motown and Soul: African American Popular Music of 1960s. (5) Lecture, four hours; discussion, one hour. Survey of developments in post-World War II African American popular music, with special attention to musical achievements of Motown Records, Stax, and other rhythm and blues, funk, and soul music centers of production. Relationships between musical forms and cultural issues of 1960s, including Civil Rights Movement, counterculture, black nationalism, capitalism, and separatism, and larger dimensions of African American experience as mediated through groove-based music. P/NP or letter grading.

65. Blues in American Music. (5) (Formerly numbered 22.) Lecture, four hours. History of blues, both as specific genre and as range of techniques and approaches that have been at center of American music

and culture, from 19th-century roots to present. Exploration of commonly accepted blues mainstream exemplified by figures like Bessie Smith, Robert Johnson, and B.B. King, but also central role blues has played in jazz, folk, country, gospel, rock, soul, and rap. While following evolution of music through 20th century, examination of how blues has served as metaphor for African American culture as it permeates American traditions. P/NP or letter grading.

66. Getting Medieval. (5) Lecture, four hours; discussion, one hour. Exploration of idea of medievalism in music and culture from Wagner to video games. Music covered includes film scores, opera, Gregorian chant, early music revival, folk songs, progressive rock, and Goth. Letter grading.

68. Beatles. (5) (Formerly numbered 4.) Lecture, four hours; discussion, one hour. Examination of life and music of Beatles within social and historical context of 1960s. P/NP or letter grading.

70. Beethoven. (5) Lecture, four hours. Designed for undergraduate students. Life and works of Ludwig van Beethoven. P/NP or letter grading.

72. Sacred Music. (5) (Formerly numbered 139.) Lecture, four hours; discussion, one hour. Study of forms and liturgies of Western church music. P/NP or letter grading.

75. History of Jazz. (5) Lecture, four hours; discussion, one hour. History and analysis of variety of jazz styles, from late 19th-century forerunners to present, with emphasis on social meanings of musical practices. Letter grading.

M87. Special Courses in Music. (5) (Same as Ethnomusicology M87 and Music M87.) Lecture, four hours; discussion, four hours. Limited to undergraduate Ethnomusicology, Music, and Music History majors. Study and analysis of current and/or special topics in ethnomusicology, music, and music history taught by resident and visiting faculty members. May be repeated for credit with topic and instructor change. Letter grading.

88. Sophomore Seminars: Music History. (2) Seminar, two hours. Designed for sophomore Music History majors or students interested in pursuing Music History major. Introduction to music history as academic discipline, with particular emphasis on musicology at UCLA. Study of music and its history and consideration of theoretical issues central to musicology as it is practiced today, including gender and sexuality, music and politics, race, popular music studies, and jazz studies. Letter grading.

CM90T. Early Music Ensemble. (4) (Same as Music M90T.) Activity, four hours. Preparation: audition. Group performance of Western vocal and instrumental music from historical periods prior to 1800. Early instruments may be used at instructor's discretion. May be repeated for credit without limitation. May be concurrently scheduled with Musicology C490T. P/NP or letter grading.

Upper Division Courses

125A-125F. Music, History, and Culture. (5 each) (Formerly numbered 26A-26B-26C and 126A-126B-126C.) Lecture, four hours; discussion, one hour. Course 125A is requisite to 125B, which is requisite to 125C; course 125D is requisite to 125E, which is requisite to 125F. Students must receive grade of C or better to proceed to next course in sequence. Introduction to history, culture, and structure of Western music through selected topics, repertoires, and analytical techniques. Vernacular and cultivated styles from early Middle Ages to present. Letter grading. **125A.** To 1500. Requisite or corequisite: course 10A. **125B.** 1500 to 1700. Requisites: courses 10B (may be taken concurrently), 125A. **125C.** 1700 to 1800. Requisites: courses 10C (may be taken concurrently), 125B. **125D.** 1800 to 1900. Requisite or corequisite: course 10A. **125E.** 1900 to 1945. Requisites: courses 10B (may be taken concurrently), 125D. **125F.** 1945 to Present. Requisites: courses 10C (may be taken concurrently), 125E.

130. Music of U.S. (4) Lecture, four hours. Survey of music in U.S. from Colonial times to present. P/NP or letter grading.

135A-135B-135C. History of Opera. (5-5-5) Lecture, four hours; discussion, one hour. Designed for undergraduate students. P/NP or letter grading. **135A.** Baroque and Classical Periods; **135B.** Romantic Period; **135C.** 20th Century.

M136. Music and Gender. (5) (Same as Women's Studies M136.) Lecture, four hours; discussion, one hour. Analysis of gender ideologies in several musical cultures; representations of gender, body, and sexuality by both male and female musicians; contributions of women to Western art and popular musics; methods in feminist and gay/lesbian theory and criticism. Letter grading.

M137. Lesbian, Gay, Bisexual, Transgender, and Queer Perspectives in Pop Music. (5) (Same as Lesbian, Gay, Bisexual, and Transgender Studies M137.) Lecture, four hours; discussion, one hour. Survey of English-language popular music in 20th century, with focus on lesbians, gay men, and members of other sexual minorities as creators, performers, and audience members. Letter grading.

140. Music, Media, and Consumer Society. (4) Lecture, four hours. Consideration of impact of recording technologies (gramophone, tape recorder, Walkman, sampler), broadcast media (radio, television, MTV, Internet), and global capitalism (record labels, advertising, Muzak) on way we consume and are consumed by music. How music functions and malfunctions on records, under movies, behind ads, and in semiotic fabric of everyday life. Letter grading.

149. Symphony. (4) Lecture, four hours. Designed for undergraduate students. Survey of symphonic literature from Haydn through 20th century. Letter grading.

160. Selected Topics in American Musical. (5) Seminar, 90 minutes. Enforced corequisite: attendance, but not enrollment, in course 60 lecture. Exploration of connections and disconnects between American musical on stage and American film musicals. Letter grading.

162. Selected Topics in Music of Mozart. (5) Seminar, two hours. Preparation: ability to read music and engage in melodic, harmonic, and formal analysis. Enforced corequisite: attendance, but not enrollment, in course 62 lecture. Limited to Music History majors and minors. Intensive discussion of selected pieces by Mozart and of certain topics important to fuller understanding of his contributions to musical culture of Enlightenment, as well as to contemporary culture. Letter grading.

163. Bach: Study of Selected Works. (5) Seminar, two hours. Enforced corequisite: attendance, but not enrollment, in course 63 lecture. Limited to Music History majors and minors. Examination of Bach's music in greater depth. Letter grading.

164. Selected Topics in African American Popular Music of 1960s. (5) Seminar, two hours. Enforced corequisite: attendance, but not enrollment, in course 64 lecture. Intensive discussion of developments in post-World War II African American popular music, with special attention to musical achievements of Motown Records, Stax, and other rhythm and blues, funk, and soul music centers of production. Relationships between musical forms and cultural issues of 1960s, including Civil Rights Movement, counterculture, black nationalism, capitalism, and separatism, and larger dimensions of African American experience as mediated through groove-based music. Letter grading.

165. Blues and Individual Expression. (5) Seminar, two hours. Enforced corequisite: attendance, but not enrollment, in course 65 lecture. Limited to Music History majors and minors. In-depth look at specific blues artists, with special attention to issues of authenticity, biography, personal and group identity, commercialism, musical style, and evolving history of American music and culture in 20th century. Letter grading.

166. Medievalism and Music History. (5) Seminar, two hours. Enforced corequisite: attendance, but not enrollment, in course 66 lecture. Exploration of ways

in which specific approaches and attitudes to past shape music history, composition, and performance, with special focus on folk music and early music revivals. Letter grading.

168. 1968. (5) Seminar, two hours. Enforced corequisite: attendance, but not enrollment, in course 68 lecture. Exploration of central issues in history and culture of 1960s as they crystallize or are brought out by events of 1968 to understand 1968 not as one iconic year in itself, but rather to use it as lens for observing cultures of music and music-making in 1960s. Letter grading.

170. Beethoven: Study of Selected Works. (5) Seminar, 90 minutes. Corequisite: attendance, but not enrollment, in course 70 lecture. Designed to meet needs of students who read music and wish to examine Beethoven's music in greater depth. Letter grading.

172. Selected Topics in Sacred Music. (5) Seminar, two hours. Enforced corequisite: attendance, but not enrollment, in course 72 lecture. Introduction to some ways that music has been held to embody, support, and enact sacredness, including experience of god(s), sense of transcendental, work of liturgy, and intersections of music, politics, and religion. Letter grading.

CM186. Music Industry. (4) (Same as Ethnomusicology CM182 and Music CM182.) Lecture, four hours; outside study, eight hours. Limited to Ethnomusicology, Music, and Music History majors. Examination of influence of music industry on way music is created, performed, listened to, evaluated, and used today. Historical approach taken, beginning with music published in 18th century and continuing through development of audio recordings to MTV and popular music today. Concurrently scheduled with course CM288. Letter grading.

187. Precapstone Course for Music History Majors. (2) Seminar, two hours. Limited to Music History majors. Student preparation for completing capstone course during Fall Quarter of senior year. Topics include research methods, engagement with music in culture, critical evaluation and use of scholarly resources, development of bibliographies, formulation of theses, and writing about music. Taken in Spring Quarter of junior year. P/NP grading.

188. Topics in Music History. (4) Lecture, three hours; laboratory, one hour. Variable topics selected from several outstanding composers in Western art music. Consult *Schedule of Classes* for topics to be offered. May be repeated for credit. Letter grading.

190. Research Colloquia in Music History. (1) Seminar, one hour. Designed for senior Music History majors. Designed to bring together students undertaking supervised tutorial research in seminar setting with one or more faculty members to share their work with their peers, as well as act as interlocutors for other course members. Students expected to present their work and to discuss and help critique work of others at similar stage of development. P/NP grading.

191A-191G. Junior Variable Topics Research Seminars: History of Music. (4 each) Seminar, three hours. Requisites: courses 26A, 26B, 26C. Designed for junior Music History majors. Special aspects of music of each period studied in depth. Reading, discussion, and development of culminating project. May be repeated for credit. P/NP or letter grading. **191A.** Middle Ages; **191B.** Renaissance; **191C.** Baroque; **191D.** Classic; **191E.** Romantic; **191F.** 20th Century; **191G.** Other Topics; **191P.** Performance Practice. Practical issues in performance practice, specific questions of how musical performance intersects with cultural and political performance, and/or general issues of theory of performance in Western musics; proportion of each to be determined by repertory and historical context selected by instructor.

191T. Capstone Seminar: Music History. (4) Seminar, three hours. Requisites: courses 26A, 26B, 26C. Limited to Music History majors. Supported by discussion and oral presentation, students formulate and write their senior theses. Normally taken in Fall Quarter of senior year. P/NP or letter grading.

193A. Music History Journal Club Seminars for Minors. (2) Seminar, two hours. Limited to junior/senior Music History minors. Overview of music history as academic discipline to introduce students to readings and lectures on current topics in field. Study of music and its history under number of guises, including historical study of music, addressing both research methodologies and historical narratives. Theoretical issues central to musicology as it is practiced at UCLA and elsewhere, including gender and sexuality, music and politics, race, popular music studies, and jazz studies. P/NP grading.

193B. Music History Performance Seminars for Minors. (2) Seminar, two hours. Limited to senior Music History minors. Overview of how music historians engage with issues of musical performance. Consideration of how historical concerns, theoretical issues, and methodologies can inform music as practice, especially as it is performed, recorded, listened to, danced to, and otherwise consumed. P/NP grading.

193C. Music History Journal Club Seminars for Majors. (2) Seminar, two hours. Limited to Music History majors. Introduction to discipline through discussion of readings and lectures on current topics in field, with focus especially on its practice at UCLA, and addressing research methodologies and development of bibliographic control. Normally taken in junior year. P/NP grading.

193D. Music History Performance/Analysis Seminars for Majors. (2) Seminar, two hours. Recommended requisite: course 193C. Limited to Music History majors. Introduction to how music historians engage with issues of musical performance. and of how historical concerns, theoretical issues, and methodologies can inform music as practice, especially as it is performed, recorded, listened to, danced to, and otherwise consumed. Continued attention to issues of bibliographic control. Normally taken in senior year. P/NP grading.

195. Community Internships in Music. (2 to 4) Tutorial, one hour; fieldwork, 10 hours. Limited to juniors/seniors. Internship in supervised setting in community agency or business related to music or music history. Students meet on regular basis with instructor and provide periodic reports of their experiences and final project. May be repeated for credit. Individual contract with supervising faculty member required. P/NP grading.

197. Individual Studies in Music History. (2 to 4) Tutorial, two hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

198. Honors Research in Music History. (2 to 4) Tutorial, two hours. Preparation: completion of minimum of four upper division music history courses with departmental grade-point average of 3.5 or better and overall GPA of 3.0. Limited to junior/senior Music History majors. One- to two-term independent research study project under supervision of appropriate faculty member, culminating in department honors thesis of approximately 25 pages. May be repeated for credit. Individual contract required. P/NP or letter grading.

199. Directed Research in Music History. (2 to 4) Tutorial, two hours. Preparation: 3.0 grade-point average. Limited to junior/senior Music History majors. Supervised individual research under guidance of faculty mentor. Culminating paper or project required. May be repeated for maximum of 8 units. Individual contract required. P/NP or letter grading.

Musicology

Graduate Courses

200A. Introduction to Music Scholarship. (6) Seminar, three hours. Designed for graduate musicology, ethnomusicology, and music students. Introduction to history of different fields of music scholarship (with strong focus on musicology) and to selected debates

in those fields. Practical tools for research, logic and structure of arguments, evidence, critical thinking and critique, historiography, rhetoric and voice, and archival and ethnographic research. Introduction to practical written forms such as abstract, grant proposal, paper/book proposal, and review. Letter grading.

200B. Critical, Cultural, and Social Theory. (6) Seminar, three hours. Designed for graduate musicology, ethnomusicology, and music students. Introduction to issues surrounding music as social, cultural, and historical practice, with strong emphasis on critical, cultural, and social theory. May include introduction to social theory, materialist theories of culture, postcolonialism, critical theory, or overview of cultural theory or of group of theories selected by instructor, including feminism, performance studies, sociology, historiography, urban studies, anthropology, philosophy, psychoanalysis, poststructuralism, gender, race, and sexuality studies, lesbian, gay, bisexual, transgender, and queer studies, disability studies, and so on. Introduction to set body of theory in its relation to study of music. Letter grading.

200C. Music Aesthetics, Analysis, and Philosophy. (6) Seminar, three hours. Designed for graduate musicology, ethnomusicology, and music students. Exploration of selected philosophical, aesthetic, and/or analytical perspectives on music to gain insight into selected analytical and philosophical approaches to phenomenon of music and to acquire skills in analyzing and interpreting variety of repertoires. Letter grading.

M201. Repertory and Analysis. (2) (Formerly numbered 201.) (Same as Music M201.) Seminar, two hours. Requisite or corequisite: course 200A. Exploration of defined repertory through readings and analysis. Specific topics vary. May be repeated for credit. S/U grading.

245. Seminar: Analytical/Repertoire Topics. (4) Seminar, three hours. Designed for graduate musicology students. Coverage of analytical topics that vary from year to year. May be repeated for credit. Meets with course 246; concurrent enrollment in both courses not allowed. Letter grading.

246. Audit Seminar: Analytical/Repertoire Topics. (2) Seminar, three hours. Requisite or corequisite: course 200A. Specific topics vary from year to year. May not be applied toward M.A. or Ph.D. degree requirements. May be repeated for credit. Meets with course 245; concurrent enrollment in both courses not allowed. S/U grading.

250. Seminar: Theoretical Topics. (4) Seminar, three hours. Designed for graduate musicology students. Coverage of theoretical topics that vary from year to year. May be repeated for credit. Meets with course 251; concurrent enrollment in both courses not allowed. Letter grading.

251. Audit Seminar: Theoretical Topics. (2) Seminar, three hours. Requisite or corequisite: course 200A. Specific topics vary from year to year. May not be applied toward M.A. or Ph.D. degree requirements. May be repeated for credit. Meets with course 250; concurrent enrollment in both courses not allowed. S/U grading.

255. Seminar: Historical Topics. (4) (Formerly numbered 260G.) Seminar, three hours. Designed for graduate musicology students. Coverage of historical topics that vary from year to year. May be repeated for credit. Meets with course 256; concurrent enrollment in both courses not allowed. Letter grading.

256. Audit Seminar: Historical Topics. (2) Seminar, three hours. Requisite or corequisite: course 200A. Specific topics vary from year to year. May not be applied toward M.A. or Ph.D. degree requirements. May be repeated for credit. Meets with course 255; concurrent enrollment in both courses not allowed. S/U grading.

261. Topics in Performance Practice. (4) (Formerly numbered 261F.) Seminar, three hours. Designed for graduate students. Investigation of primary source readings in performance practices across history of Western music; analytical reports and practical applications in class demonstrations. May be repeated for credit. Letter grading.

262. Contemporary Popular Music Studies. (4) Seminar, three hours. Designed for graduate students. Critical exploration of methodologies of interdisciplinary field of popular music studies. Analysis of how music, lyrics, and visual images produce meanings within contexts shaped by mass mediation, capitalism, and political realities of gender, class, and race. S/U or letter grading.

263. Topics in Performance. (4) Seminar, three hours. Designed for graduate students. Survey of role of performers and performance in Western music history. Critical understanding of (and set of tools for addressing) frequent invisibility or transparency of performance and performers in histories of music. Letter grading.

264. Seminar: Topics in Musicology. (6) Seminar, three hours. Designed for graduate students. Specific topics vary from term to term. May be repeated for credit. Letter grading.

265A-265G. Seminars: Historical Musicology. (2 each) (Formerly numbered 265A-265F.) Seminar, three hours. Prerequisite or corequisite: course 200A. Specific topics vary from year to year. May not be applied toward M.A. or Ph.D. degree requirements. May be repeated for credit. Meets with corresponding course from 260A through 260G series; concurrent enrollment in both courses not allowed. S/U grading. **265A.** Medieval; **265B.** Renaissance; **265C.** Baroque; **265D.** Classical; **265E.** Romantic; **265F.** 20th Century; **265G.** Variable Topics.

CM288. Music Industry. (4) (Same as Ethnomusicology CM288 and Music CM282.) Lecture, four hours; outside study, eight hours. Limited to Ethnomusicology, Music, and Musicology majors. Examination of influence of music industry on way music is created, performed, listened to, evaluated, and used today. Historical approach taken, beginning with music published in 18th century and continuing through development of audio recordings to MTV and popular music today. Concurrently scheduled with course CM186. Letter grading.

296. Research Topics in Musicology. (2 to 4) Seminar, two to four hours. Preparation: consultation with instructor. Designed for graduate musicology students. Advanced study and analysis of current topics in musicology. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. S/U grading.

298. Seminar: Research Methods. (2) Seminar, two hours. Limited to second-year graduate musicology students and students with master's degrees. Development of advanced knowledge and bibliographic control in three historically separate areas of musicological specialization. May be repeated for credit. S/U grading.

299. Dissertation Research Colloquium. (2) Seminar, two hours. Preparation: advancement to Ph.D. candidacy. Presentation of ongoing dissertation research. Analysis and discussion of presentations. May be repeated for credit. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

C490T. Early Music Ensemble. (4) Activity, four hours. Preparation: audition. Group performance of Western vocal and instrumental music from historical periods prior to 1800. Early instruments may be used at instructor's discretion. May be repeated for credit without limitation. May be concurrently scheduled with Music History CM90T. S/U or letter grading.

495. Introductory Practicum for Teaching Apprentices in Musicology. (2) Eight weekly two-hour seminar sessions, plus intensive training session during Fall Quarter registration week. Preparation: appointment as teaching apprentice in Music or Musicology Department. Required of all new teaching apprentices. Special course dealing with problems and practices of teaching music at college level. May not be applied toward degree requirements. S/U grading.

596. Directed Individual Studies in Musicology. (2, 4, or 6) Tutorial, to be arranged. Limited to graduate students. S/U or letter grading.

597. Preparation for M.A. Comprehensive Examination or Ph.D. Qualifying Examinations. (2 or 4) Tutorial, to be arranged. Preparation: completion of all M.A. or Ph.D. course and language requirements. Limited to graduate students. S/U grading.

599. Guidance of Ph.D. Dissertation. (4, 8, or 12) Tutorial, to be arranged. Preparation: advancement to Ph.D. candidacy. Limited to graduate students. May be repeated for credit. S/U grading.

NEAR EASTERN LANGUAGES AND CULTURES

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Guliz Kuruoglu, Ph.D.
Abeer Mohamed, Ph.D.
Jeremy D. Smoak, Ph.D.

Adjunct Assistant Professor

David G. Hirsch, M.A.

Scope and Objectives

The mission of the Department of Near Eastern Languages and Cultures is the discovery, interpretation, dissemination, and preservation of human values created over a period of five or more thousand years in an area that was the cradle of all civilization.

The department offers instruction in the major modern and ancient languages of the Near East: Akkadian, ancient Egyptian, Arabic, Armenian, Berber, Coptic, Hebrew, Persian, and Turkic. To meet increasing demands for a knowledge of this area and its past and present, it treats each language in a wide perspective—as a means of communication, as a vehicle of a cultural heritage, as a research tool for the area, and as an object of research itself.

Undergraduate majors may be taken in Ancient Near Eastern Civilizations, Arabic, Hebrew, Iranian Studies, and Jewish Studies. M.A. and Ph.D. programs are offered in ancient Near Eastern civilizations, Arabic, Armenian, Hebrew, Iranian, Semitics, and Turkic.

Courses in the department prepare students for careers in government, foreign trade, teaching abroad, journalism abroad, archaeology, and further academic work involving the area.

Undergraduate Study

The department offers the Bachelor of Arts degree in five fields: (1) Ancient Near Eastern Civilizations, (2) Arabic, (3) Hebrew, (4) Iranian Studies, and (5) Jewish Studies. In each of these fields students must meet the requisites and take the courses prescribed. Their adviser assists in selecting a plan of study developed around their interests.

Students may combine their major with one in another department (double major) to enhance their educational opportunities. Due to the number of additional courses required, they are advised to consider this option early in their academic career and in consultation with program advisers in both majors.

Ancient Near Eastern Civilizations B.A.

There are four options for a major in Ancient Near Eastern Civilizations: (1) Mesopotamia, (2) Egypt, (3) Near Eastern archaeology and cultures, and (4) biblical studies.

Preparation for the Major

Requisite for all options: Near Eastern Languages M20 or 50A; requisites for options 1, 2, and 3: German 1, 2, 3 (French 1, 2, 3 may be substituted); requisites for option 4: Hebrew 1A, 1B, 1C. Majors in all four fields are encouraged to continue their language study beyond the requisite levels.

Transfer Students

Transfer applicants to the Ancient Near Eastern Civilizations major with 90 or more units must complete the following introductory courses prior to admission to UCLA: one civilization course for all options, one year of German or French for the

options in Mesopotamia, Egypt, and Near Eastern archaeology and cultures, and one year of Hebrew for the biblical studies option.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Majors in all four options are required to take 14 upper division courses selected in consultation with the program adviser.

Majors selecting option 1 (Mesopotamia) are required to take 14 courses as follows: four language courses (Semitics 140A, 140B, 141, 142) and two literature and history courses selected from Ancient Near East M104, 150A, M185D. The remaining eight courses are to be selected from Ancient Near East M103A, M103B, 130, 140A, 140B, 140C, 145, 150B, 150C, 160, 161, 162, 163, 164A, 164B, 164C, 170, Iranian 169, Jewish Studies M150A. One course must be in research methodology (such as Anthropology 111, C115R, 130, M140, 141, 150, 156, Archaeology C159, Comparative Literature 100, English 111A, 140A, or Linguistics 110) taken preferably in another department with consent of the adviser.

Majors selecting option 2 (Egypt) are required to take 14 courses as follows: four language courses (Ancient Near East 120A, 120B, 120C, 121A) and three literature and history courses (Ancient Near East M103A, M103B, 150B). The remaining seven courses are to be selected from Ancient Near East CM101A, CM101B, M104, 121B, 121C, 123A, 123B, 124, 130, 150A, 150B, 150C, 160, 161, 162, 163, 164A, 164B, 164C, C165, 170, Iranian 169, Jewish Studies M150A, M182A. One course must be in research methodology (such as Anthropology 111, C115R, 130, M140, 141, 150, 156, Archaeology C159, Comparative Literature 100, English 111A, 140A, or Linguistics 110) taken preferably in another department with consent of the adviser.

Majors selecting option 3 (Near Eastern archaeology and cultures) are required to take 14 courses as follows: three upper division courses in any Near Eastern language (Akkadian, Arabic, Egyptian, Hebrew) and two courses in research methodology (such as Anthropology 111, C115R, 130, M140, 141, 150, 156, Archaeology C159, Comparative Literature 100, English 111A, 140A, or Linguistics 110). The remaining nine courses are to be selected from Ancient Near East M103A, M103B, M104, 120A, 120B, 120C, 121A, 121B, 121C, 123A, 123B, 124, 130, 150A, 150B, 150C, 160, 161, 162, 163, 164A, 164B, 164C, C165, Art History M101A, M101B, M102A, M102B, Classics 168, Jewish Studies M150A, 150B, 170, M182A, Semitics 140A, 140B, 141, 142.

Majors selecting option 4 (biblical studies) are required to take 14 courses as follows: four language courses (Hebrew 102A, 102B, 102C, 120) and three history and literature courses (English 108B, Jewish Studies M150A, M182A). The remaining seven courses are to be selected

from Ancient Near East M103A, M103B, M104, 130, 150A, 150B, 160, 161, 162, 163, 164A, 164B, 164C, C165, 170, English 108A, 108C, Greek 130, Hebrew 125, 130, 135, History 186A, 186B, 186C, Jewish Studies 150B, 170, 177, Latin 120, Semitics 130.

Study Abroad

Students are encouraged to spend time abroad either to (1) study with an education abroad program or (2) work on a UCLA-affiliated archaeological excavation in the broader Middle East. For information on studying abroad, contact the Education Abroad Program, B300 Murphy Hall, (310) 825-4995; for UCLA-affiliated excavations, contact the departmental academic counselor at (310) 825-4165.

Arabic B.A.

Preparation for the Major

Required: Arabic 1A, 1B, 1C.

Transfer Students

Transfer applicants to the Arabic major with 90 or more units must complete the following introductory courses prior to admission to UCLA: one year of Arabic.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Fourteen courses, including seven from Arabic 102A, 102B, 102C, 103A, 103B, 103C, 120, 130, 132, C141, 142, 181; three literature and culture courses from Arabic M110, 150, M151, Comparative Literature 100, Islamics 110, 130, 151; and two history courses from History 105A, 105B, 105C, 106A, 108B, 111A, 111B, 111C, 200J. The remaining two courses may be selected from Anthropology M171P, 271, Arabic 111A, 111B, 111C, 112A, 112B, 112C, Art History 104A, 104B, C104C, 213, C214, Geography 187, History 105A, 105B, 105C, 106A, 106B, 108B, 111A, 111B, 111C, 200J, Near Eastern Languages 200, 201, Political Science 132A, M132B, 157, 165, 245, Women's Studies 285. No more than two of the 14 courses may be credited through a proficiency test administered by the department. Other courses, including extra-departmental courses, may be applied with consent of the adviser.

Hebrew B.A.

Preparation for the Major

Required: Hebrew 1A, 1B, 1C, or equivalent.

Transfer Students

Transfer applicants to the Hebrew major with 90 or more units must complete the following introductory courses prior to admission to UCLA: one year of Hebrew.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Fourteen courses, including Hebrew 102A, 102B, 102C, 103A, 103B, 103C; one term of Hebrew 120 or 125; and one term of Hebrew C140. The remaining six courses may be selected from Hebrew 111A, 111B, 111C, 130, 135, C140, 160, 170, 180A, 180B, 199, Jewish Studies M150A, 150B, M182A, M182B, Semitics 110, 115, 130, 140A, 140B. No more than two of the 14 courses may be credited through a proficiency test administered by the department. A maximum of two Hebrew 197 or 199 courses (8 units total) may be applied toward the major.

Iranian Studies B.A.

Students majoring in Iranian Studies may combine the major with specialization in other fields to enhance their career opportunities. Due to the number of additional courses required, they are advised to consider this option early in their academic career.

Preparation for the Major

Required: Iranian 1A, 1B, 1C, or equivalent.

Transfer Students

Transfer applicants to the Iranian Studies major with 90 or more units must complete the following introductory courses prior to admission to UCLA: one year of Persian.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Fourteen courses, including at least six from Iranian 102A, 102B, 102C, 103A, 103B, 103C, M110A, M110B, M110C, 120, 140, 141, 142, 161A, 161B, 161C, 170, 187 and at least five courses from Ancient Near East 150A, 150B, 163, Arabic 1A, 1B, 1C, Art History 104A, 104B, C104C, Ethnomusicology 20B, History 105A, 105B, 105C, 110D, Iranian 104, 120, 181A, 181B, 187, 197, 199, M210, 220A, 220B, 221, 231A, 231B, 231C, 250, 251, Political Science 157. The remaining three courses may be selected from any of the above. No more than two of the 14 courses may be credited through a proficiency test administered by the department. A maximum of two Iranian 197 or 199 courses (8 units total) may be applied toward the major.

Jewish Studies B.A.

Students must select one of five tracks: (1) Jewish history, (2) Jewish religions, (3) Jewish literature and culture, (4) American Jewish literature and culture, or (5) Israeli studies.

Preparation for the Major

Required: Jewish Studies 10.

Transfer Students

Transfer applicants to the Jewish Studies major with 90 or more units must complete the following introductory course prior to admission to

UCLA: one social, cultural, and religious institutions of Judaism course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Majors in all five tracks are required to take 14 upper division courses selected in consultation with the program adviser, including seven required core courses, five courses within the selected track, and two electives to be chosen from Hebrew, Jewish studies, or any courses listed under any track.

Core requirements include Jewish Studies M184A (or History M184A); one year of upper division Hebrew (either Hebrew 102A, 102B, and 102C, or Hebrew 103A, 103B, and 103C); two terms of the Jewish history sequence selected from Jewish Studies M182A, M182B, M182C, M184B; and one course on the Hebrew Bible selected from English 108A, Hebrew 120, or Jewish Studies M150A, 150B.

A third year of Hebrew or one year of Yiddish or another Jewish language is strongly recommended but not required.

Students are encouraged to take a research tutorial within Jewish Studies 197 or 199. A maximum of two 197 or 199 courses (8 units total) may be applied toward the major.

A course may be applied toward only one category within the major (i.e., core requirement, track requirement, or electives). No more than 20 units may be applied toward both the Jewish Studies major and a major or minor in another department or program.

For the Jewish history track, students are required to complete the remaining two courses from Jewish Studies M182A, M182B, M182C, M184B and three courses from the following list, in addition to the core courses for the major: Ancient Near East 162, History M182D, 183A, 183B, 186A, 191A, 197, Jewish Studies 140A, 140B, 170, M182D, M182E, M182F, M184D, 197, 199.

For the Jewish religion track, students are required to complete Jewish Studies 150B and four of the following courses, in addition to the core courses for the major: Ancient Near East 162, English 108A, 108C, 199, Hebrew 120, 125, 130, History 186A, Jewish Studies 130, 135, M150A, M151A, 155, 170, M182A, M182B, M187, 197, 199.

For the Jewish literature and culture track, students are required to complete Hebrew 103A, 103B, 103C, and two of the following courses, in addition to the core courses for the major: English 103, 108A, 108C, 182C, German 109, Hebrew 111A, 111B, 111C, 120, 125, 130, C140, Iranian 131, Jewish Studies 135, 143, M150A, 150B, M151A, 151B, 155, 170, 177, M187, 197, 199.

For the American Jewish studies track, students are required to complete Sociology 159 and four of the following courses, in addition to

the core courses for the major: English 103, 182C, 199, History 197, Jewish Studies 135, 140A, 140B, M151A, 177, M182F, M184C, 199, Yiddish 101A, 101B, 101C, 102A, 102B.

For the Israeli studies track, students are required to complete Hebrew 103A, 103B, 103C, and two of the following courses, in addition to the core courses for the major: Hebrew 111A, 111B, 111C, C140, History 183B, 197, Jewish Studies 142, 151B, M182B, M184D, 197, 199, Political Science 121A, 132A, M132B, 139, 164, 199.

Study in Israel

Students are encouraged to spend up to one year in Israel either to (1) study with an education abroad program or (2) study at an Israeli university. For information on studying in Israel, contact the Education Abroad Program, B300 Murphy Hall, (310) 825-4889.

Arabic and Islamic Studies Minor

The Arabic and Islamic Studies minor is designed for students who wish to augment their major program with a group of related courses that provide a systematic introduction to the study of Arabic language and literature and Islam.

To enter the minor, students must have an overall grade-point average of 2.0 or better, have completed Arabic 1A, 1B, 1C, or the equivalent as determined by the department, and file a petition in 378 Humanities Building, (310) 825-4165.

Required Upper Division Courses (28 units): Seven courses in Arabic or Islamics; 199 courses may not be applied. With consent of the undergraduate adviser, two of the seven courses may be taken outside the department. Courses recommended as electives for the major in Arabic (Anthropology M171P, 271, Art History 104A, 104B, C104C, 213, C214, Comparative Literature 100, Geography 187, History 105A, 105B, 105C, 106A, 106B, 108B, 111A, 111B, 111C, 200J, Islamics 110, 130, Near Eastern Languages 200, 201, Political Science 132A, M132B, 157, 165, 245, Women's Studies 285) may be applied. Other courses, including extra-departmental courses, may be applied with consent of the adviser.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Armenian Studies Minor

The Armenian Studies minor is designed for students who wish to augment their major program with a group of courses that provide a systematic introduction to the study of Armenian culture.

To enter the minor, students must have an overall grade-point average of 2.0 or better, have completed Armenian 101A, 101B, 101C, or the equivalent as determined by the depart-

ment, and file a petition in 378 Humanities Building, (310) 825-4165.

Required Upper Division Courses (28 units): Seven courses from the Armenian section of the department; 199 courses may not be applied. At least one course from each of the three disciplines of language, literature, and history must be selected. Eligible language courses begin in the fourth quarter of study (i.e., course 102A for Western Armenian, course 105A for Eastern Armenian). With consent of the undergraduate adviser, two of the seven courses may be taken outside the department. Ordinarily, the following courses may be applied: History 107A through 107E, 200S, 201S, 211A, 211B, 212, Indo-European Studies M150.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Hebrew and Jewish Studies Minor

To enter the Hebrew and Jewish Studies minor, students must have an overall grade-point average of 2.0 or better, have completed Hebrew 1A, 1B, 1C, or the equivalent as determined by the department, and file a petition in 378 Humanities Building, (310) 825-4165.

Required Upper Division Courses (28 units): Seven courses from the Hebrew or Jewish studies section of the department; 199 courses may not be applied. With consent of the undergraduate adviser and based on course content, two of the seven courses may be taken outside the department.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Near Eastern Languages and Cultures Minor

The Near Eastern Languages and Cultures minor is designed for students who wish to augment their major program in the College of Letters and Science with a group of related courses from various linguistic, literary, archaeological, and historical disciplines of the Near East, from ancient Egypt, Mesopotamia, and biblical studies to the modern Arabic, Armenian, Iranian, Jewish, and Turkish world.

To enter the minor, students must have an overall grade-point average of 2.0 or better and file a petition in 378 Humanities Building, (310) 825-4165.

Required Upper Division Courses (28 units): Seven courses selected in consultation with an academic adviser from any of the courses offered by the department; 199 courses may not be applied. With consent of the undergraduate adviser, two of the seven courses may be taken outside the department, provided the content of

the courses bears a direct relation to the culture of the Near East.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Near Eastern Languages and Cultures offers Master of Arts (M.A.), Candidate in Philosophy (C.Phil.), and Doctor of Philosophy (Ph.D.) degrees in Near Eastern Languages and Cultures.

Ancient Near East

(Akkadian, Aramaic, Phoenician, and Ugaritic are listed under Semitics.)

Lower Division Course

10W. Jerusalem: Holy City. (5) Lecture, three hours; discussion, one hour. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Survey of religious, political, and cultural history of Jerusalem over three millennia as symbolic focus of three faiths: Judaism, Christianity, and Islam. Transformation of sacred space as reflected by literary and archaeological evidence through examination of testimony of artifacts, architecture, and iconography in relation to written word. Study of creation of mythic Jerusalem through event and experience. Satisfies Writing II requirement. Letter grading.

Upper Division Courses

CM101A. Art and Architecture of Ancient Egypt, Predynastic Period to New Kingdom. (4) (Formerly numbered M101A.) (Same as Art History M101A.) Lecture, three hours. Study of architecture, sculpture, painting, and minor arts during Predynastic period and Old Kingdom. May be repeated for credit with consent of instructor. Concurrently scheduled with course C267A. P/NP or letter grading.

CM101B. Art and Architecture of Ancient Egypt, New Kingdom to Greco-Roman Period. (4) (Formerly numbered Near Eastern Languages M101B.) (Same as Art History M101B.) Lecture, three hours. Study of architecture, sculpture, painting, and minor arts from New Kingdom to Greco-Roman period. Concurrently scheduled with course C267B. P/NP or letter grading.

M103A-M103B. Ancient Egyptian Civilization. (4-4) (Same as History M103A-M103B.) Lecture, three hours; discussion, one hour (when scheduled). Course M103A is not requisite to M103B. Designed for juniors/seniors. Political and cultural institutions of ancient Egypt and ideas on which they were based. P/NP or letter grading. **M103A.** Chronological discussion of Prehistory, Old and Middle Kingdom. **M103B.** New Kingdom and Late period until 332 B.C.

M104. History of Ancient Mesopotamia and Syria. (4) (Same as History M104.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Political and cultural development of Fertile Crescent, including Palestine, from Late Uruk to neo-Babylonian period. Letter grading.

M110A-M110B-M110C. Iranian Civilization. (4-4-4) (Same as History M110A-M110B-M110C and Iranian M110A-M110B-M110C.) Lecture, three hours; discussion, one hour (when scheduled). History of ancient Iran from rise of Elam to end of Sasanian dynasty—Elamite civilization and Mede, Achaemenid, Arsacid, and Sasanian Empires. Emphasis on ancient Iran, but may be offered for early Islamic period. P/NP or letter grading.

120A-120B-120C. Elementary Ancient Egyptian. (5-5-5) Lecture, five hours. Course 120A is requisite to 120B, which is requisite to 120C. P/NP or letter grading. **120A.** Introduction to hieroglyphic script and phonology and morphology of Middle Egyptian. Basic rules of Middle Egyptian syntax, with focus on nominal, adjectival, and adverbial sentences. **120B.** Verbal system and syntax of verbal sentences of Middle Egyptian. **120C.** Reading of authentic Egyptian texts to deepen knowledge of Egyptian grammar and to acquire familiarity with aims and methods of philology, study of ancient texts.

121A-121B-121C. Intermediate Ancient Egyptian Readings. (5-5-5) Lecture, three hours. Requisite: course 120C. Course 121A is requisite to 121B, which is requisite to 121C. Thematic readings in ancient Egyptian historical, religious, and literary texts. May be repeated for credit. P/NP or letter grading.

123A-123B. Coptic. (5-5) Lecture, three hours. Course 123A is requisite to 123B. Introduction to Coptic grammar and reading of Coptic texts. P/NP or letter grading.

124. Middle Egyptian Technical Literature. (4) Lecture, three hours. Requisite: course 121C. Reading of Middle Egyptian technical literature in hieroglyphic transcription. Medical, veterinary, mathematical, and astronomical texts included. P/NP or letter grading.

125A. Digital Cultural Mapping Core Course A: Place, Time, and Digital World. (4) Lecture, three hours; discussion, one hour. Introduction to how emerging digital mapping technologies like geographic information systems (GIS), virtual globes, and three-dimensional modeling are being utilized as new means of inquiry in the humanities and social sciences. Provides students with critical apparatus needed to effectively, responsibly, and heuristically use technology in digital cultural mapping projects. Analysis of different forms of visual presentation, with focus on data representation through mapping, reasoning, and argumentation to learn to critically assess map-based presentations. Tracing of history of mapping and spatial representation of place to learn how mapping has always been connected with societal structures, politics, economics, and culture because maps do not merely represent reality, but also produce reality by structuring world and organizing knowledge about it. Part of Digital Cultural Mapping Project supported by W.M. Keck Foundation. P/NP or letter grading.

M125B. Digital Cultural Mapping Core Course B: Google Earth, Geographic Information Systems, Hypercities, and Timelines. (4) (Same as Architecture and Urban Design M125B.) Laboratory, three hours; discussion, one hour. Enforced requisite: course 125A. Hands-on laboratory-based investigation of emerging digital mapping technologies, including instruction in Web-based mapping applications, virtual globes, and geographic information systems (GIS). Critique and creation of maps of cultural phenomena, applying skills students learned in course 125A to real-world data sets in humanities and social sciences. By mastering emerging technologies in field of digital cultural mapping, students take part in evaluation and production of sophisticated visual representations of complex data, becoming active participants in development of this new field. How to use suite of GIS and neogeography tools. Fostering of creative approaches to and engagement with mapping technologies: What new questions can be asked and answered using

these technologies? How does one reason, argue, and solve real-world problems through digital cultural mapping? Design, development, and implementation of student mapping-based research projects. Part of Digital Cultural Mapping Project supported by W.M. Keck Foundation. P/NP or letter grading.

M125C. Digital Cultural Mapping Core Course C: Summer Research. (4) (Same as Architecture and Urban Design M125C.) Laboratory, three hours; fieldwork, one hour. Enforced requisite: course M125B or Architecture and Urban Design M125B. Participation in collaborative geographic information systems (GIS) research project in humanities or social sciences using skills learned in courses 125A and M125B. Gathering and input of datasets from real-world sources, creating visual representations of data through production of digital maps, and performing analysis of larger dataset to answer specific research questions. Final oral presentation required that details student work and provides critical analysis of source material and technological/methodological issues inherent to type of GIS used for investigation. Part of Digital Cultural Mapping Project supported by W.M. Keck Foundation. Offered in summer only. P/NP or letter grading.

130. Ancient Egyptian Religion. (5) Lecture, three hours; discussion, one hour. Introduction to religious beliefs, practices, and sentiments of ancient Egypt to study Egyptian religion as coherent system of thought and sphere of action that once served as meaningful and relevant framework for understanding physical reality and human life for inhabitants of Nile Valley. General principles as well as developments through time (circa 3000 B.C. to 300 C.E.). Topics include mythology, temple and cult, magic, and personal piety. P/NP or letter grading.

135. Religion in Ancient Israel. (4) Lecture, three hours. Introductory survey of various ancient Israelite religious beliefs and practices, their origin, and development, with special attention to diversity of religious practice in ancient Israel and Canaan during 1st millennium B.C.E. P/NP or letter grading.

140A-140B-140C. Elementary Sumerian. (4-4-4) Lecture, three hours. Requisites: Semitics 140A, 140B. Elementary grammar and reading of royal inscriptions, letters, and administrative texts from Ur III period. P/NP or letter grading.

145. Sumerian Literary Texts. (4) Lecture, three hours. Requisites: courses 140A, 140B. Reading and interpretation of selected Sumerian literary texts. P/NP or letter grading.

150A-150B-150C. Survey of Ancient Near Eastern Literatures in English. (4-4-4) Lecture, three hours. Each course may be taken independently for credit. P/NP or letter grading. **150A.** Mesopotamia; **150B.** Egypt; **150C.** Syria and Palestine, Asia Minor, Persia.

160. Origins of Agriculture. (4) Lecture, three hours. Requisite: Anthropology 8. Overview of prehistory of ancient Near East, with focus on human origins, origins of agriculture, and first cities. P/NP or letter grading.

161. Archaeology of Prehistoric Mesopotamia. (4) Lecture, three hours. Survey of prehistoric archaeological periods in Mesopotamia. P/NP or letter grading.

162. Archaeology of Ancient Israel. (4) Lecture, three hours. Survey of Bronze and Iron Age archaeology of Canaan and Israel through coming of Alexander the Great, with emphasis on relationship between archaeology and historical texts. P/NP or letter grading.

163. Archaeology of Iran. (4) Lecture, three hours. Designed to introduce students to Iranian archaeology from prehistoric through Achaemenid times. P/NP or letter grading.

164A. Sumerians. (4) Lecture, three hours. Overview of Sumer and related cultures of Greater Mesopotamia in 4th and 3rd millennia B.C.E., with focus on rich cultural history of region and integration of archaeological, art historical, and written records. P/NP or letter grading.

164B. Assyrians. (4) Lecture, three hours. Overview of Assyrian cultural history from its origins to end of Neo-Assyrian period (circa 612 B.C.E.), with focus on

rise, mechanics, and decline of Neo-Assyrian Empire, which at its peak ruled ancient Near East from Zagros to Egypt. P/NP or letter grading.

164C. Babylonians. (4) Lecture, three hours. Overview of Babylonia and cultural history of region from late 3rd millennium B.C.E. to invasion of Cyrus in 539 B.C.E., with focus on history and archaeology of region, urban structure, literature, and legal practices. P/NP or letter grading.

C165. Egyptian Archaeology. (4) (Formerly numbered 165.) Seminar, three hours. Opportunity to research aspects of topics in ancient Egyptian archaeology. Topics vary each year. May be repeated for credit. Concurrently scheduled with course C266. P/NP or letter grading.

166. Art and Death in Ancient Egypt. (4) Lecture, four hours. Ways of death, burial, funerary ritual, and afterlife beliefs in ancient Egypt, as well as in ancient Near East and Nubia, with focus on ancient visual materials—both objects and architecture—from Predynastic to Roman periods. P/NP or letter grading.

M167. Magic in Ancient World. (4) (Same as Classics M167.) Lecture, three hours; discussion, one hour (when scheduled). Prerequisite: Classics 10 or 20. Exploration of art of influencing natural course of events by occult means as practiced in ancient world at large. Coverage of beliefs in supernatural forces, rites aimed at controlling these forces effectively, and character and social roles of ritual experts in various cultures of ancient world. Source material includes types of magical spells, literary texts about magic and magicians, and artifacts such as amulets and ritual implements. P/NP or letter grading.

M168. Introductory Hittite. (4) (Same as Indo-European Studies M168.) Lecture, two hours; recitation, one hour. Recommended preparation: knowledge of language with case system. Introduction to Hittite grammar by series of graded lessons covering morphology and syntax, followed by readings of selected texts from variety of genres in transliteration. P/NP or letter grading.

CM169. Introduction to Archaeological Sciences. (4) (Same as Anthropology CM110Q.) Lecture, three hours. Basic understanding of newly introduced methods and techniques throughout field of archaeology to implement them and to appreciate and evaluate results of their use by others who have embedded them in their scholarly publications or theoretical models. Systematic instruction in digital data management and mining, scientific analysis of materials (including geological and biochemical techniques), and visual presentation of data and research results (ranging from simple graphs to virtual reality). Concurrently scheduled with course CM269. P/NP or letter grading.

170. Introduction to Biblical Studies. (4) Lecture, two hours. Knowledge of original languages not required. Bible (Old and New Testaments) as book. Canon, text, and versions. Linguistic, literary, historical, and religious approaches to Bible study. Survey of history of interpretation from antiquity to present. P/NP or letter grading.

C177. Variable Topics in Ancient Near East. (4) Lecture, three hours; discussion, one hour. Variable topics; consult *Schedule of Classes* for topics to be offered in specific term. Concurrently scheduled with course C277. P/NP or letter grading.

M185D. Religions of Ancient Near East. (4) (Same as History M185D.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Main polytheistic systems of ancient Near East, with emphasis on Mesopotamia and Syria and with reference to religion of ancient Israel: varying concepts of divinity, hierarchies of gods, prayer and cult, magics, wisdom, and moral conduct. P/NP or letter grading.

197. Individual Studies in Ancient Near East. (2 to 4) Tutorial, one hour. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

199. Directed Research or Senior Project in Ancient Near East. (2 to 4) Tutorial, one hour. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

M201. Archaeological Research Design. (4) (Same as Archaeology M201C.) Seminar, three hours. Prerequisites: Archaeology M201A, M201B. How to design archaeological projects in preparation for M.A. thesis or Ph.D. phase. Students do exploratory research to select subject, then write research design that could form basis for extensive paper, grant application, or oral examination. Students work closely with faculty members and report weekly on their progress. Preparation of at least two oral progress-report presentations, one on theoretical framework and one on practical aspects of project. Final written research design that incorporates theoretical and practical aspects of research and formulates bridging arguments required. S/U or letter grading.

M208. Topics in Ancient Iranian History. (4) (Same as History M210 and Iranian M210.) Seminar, three hours. Varying topics on Elamite, Achaemenid, Arsacid, and Sasanian history. May be repeated for credit. S/U or letter grading.

210. Late Egyptian. (4) Lecture, three hours. Prerequisites: courses 121A, 121B, 121C. Late Egyptian grammar and reading of both hieroglyphic and hieratic texts. May be repeated for credit. S/U or letter grading.

211A-211B. Egyptian Texts of Greco-Roman Period. (4-4) Lecture, three hours. Prerequisite: course 121C. Introduction to grammar and orthography of hieroglyphic texts from Greco-Roman temples. Text readings and translation of various textual types. Letter grading.

220. Seminar: Ancient Egypt. (4) Seminar, three hours. May be repeated for credit. S/U or letter grading.

221A-221B. Demotic. (4-4) Lecture, three hours. Prerequisite: course 121C. Course 221A is prerequisite to 221B. Introduction to Demotic grammar and orthography. Reading of texts from various genres. May be repeated for credit with topic change. S/U or letter grading.

230. Seminar: Ancient Syria/Palestine. (4) Seminar, three hours. Examination of selected topics on political, social, and intellectual history of ancient Israel. Exploration of how historical, social, and political contexts shaped and influenced interpretation and use of biblical texts. May be repeated for credit. S/U or letter grading.

240A-240B-240C. Seminars: Sumerian Language and Literature. (4-4-4) Seminar, two hours. Readings of texts from various Sumerian periods and literary genres; selected problems in linguistic or stylistic analysis and literary history. S/U or letter grading.

M250. Seminar: Ancient Mesopotamia. (4) (Same as History M207.) Seminar, three hours. Selected topics on political, social, and intellectual history of ancient Mesopotamia. May be repeated for credit. S/U or letter grading.

250X. Seminar: Ancient Mesopotamia. (1) Seminar, three hours. Selected topics on political, social, and intellectual history of ancient Mesopotamia. Course for students who participate regularly in class meetings but without homework required in course M250. May be repeated for credit. S/U grading.

260. Seminar: Ancient Near Eastern Archaeology. (2 to 4) Seminar, two hours. May be repeated for credit. S/U or letter grading.

261. Practical Field Archaeology. (2 to 8) Fieldwork, two hours. Participation in archaeological excavations or other archaeological research in Near East under staff supervision. May be repeated for credit. S/U or letter grading.

262. Seminar: Object Archaeology. (4) Seminar, two hours; laboratory, one hour. Selected topics in analysis and interpretation of Near Eastern archaeo-

logical finds in museum collections. Students work with objects in Heeramanek Collection of Los Angeles County Museum of Art. S/U or letter grading.

263. Seminar: Egyptian Monuments. (4) Seminar, two hours. Selected monuments and sites in Egypt, including Delta, Nile Valley, desert sites, wadis, oases, and border regions. Architecture and decoration of temples and tombs, statuary and monuments, settlement and use history, text translation of appropriate documents, including stelae, monumental inscriptions, or pertinent socioeconomic texts. May be repeated. S/U or letter grading.

264. Egyptian Museum Collections. (4) Seminar, two hours; research group meeting, one hour. Ancient Egyptian museum collections around world, data sets, provenance and dating studies, collection history and agenda, museology, and exhibition history. May be repeated for credit with consent of instructor. S/U or letter grading.

M265. Depositional History and Stratigraphic Analysis. (4) (Same as Archaeology M265.) Lecture, two hours. Theoretical understanding of depositional processes ("laws") which lead to site formation and of stratigraphic procedures to be used in recovery of embedded cultural materials. Study of issues covered in literature, with specific test cases from actual excavations and site reports. Coverage of theoretical implications of such disciplines as surveying and pedology with help of specialists. S/U or letter grading.

C266. Egyptian Archaeology. (4) Seminar, three hours. Opportunity to research aspects of topics in ancient Egyptian archaeology. Topics vary each year. May be repeated for credit. Concurrently scheduled with course C165. S/U or letter grading.

C267A. Art and Architecture of Ancient Egypt, Predynastic Period to New Kingdom. (4) Lecture, three hours. Study of architecture, sculpture, painting, and minor arts during Predynastic period and Old Kingdom. May be repeated for credit with consent of instructor. Concurrently scheduled with course CM101A. S/U or letter grading.

C267B. Art and Architecture of Ancient Egypt, New Kingdom to Greco-Roman Period. (4) Lecture, three hours. Study of architecture, sculpture, painting, and minor arts from New Kingdom to Greco-Roman period. Concurrently scheduled with course CM101B. S/U or letter grading.

CM269. Introduction to Archaeological Sciences. (4) (Same as Anthropology CM210Q.) Lecture, three hours. Basic understanding of newly introduced methods and techniques throughout field of archaeology to implement them and to appreciate and evaluate results of their use by others who have embedded them in their scholarly publications or theoretical models. Systematic instruction in digital data management and mining, scientific analysis of materials (including geological and biochemical techniques), and visual presentation of data and research results (ranging from simple graphs to virtual reality). Concurrently scheduled with course CM169. S/U or letter grading.

272. Semitic Background of New Testament. (4) Lecture, two hours. Prerequisites: Hebrew 102A, 102B, 102C, Semitics 130, Greek 1, 2. Study of Semitic elements in Greek New Testament: traditions transmitted in Aramaic, relations to Old Testament and to post-Biblical literature, and Palestinian Judaism. S/U or letter grading.

C277. Variable Topics in Ancient Near East. (4) Lecture, three hours; discussion, one hour. Variable topics; consult *Schedule of Classes* for topics to be offered in specific term. Concurrently scheduled with course C177. S/U or letter grading.

596. Directed Individual Study. (2 to 8) Tutorial, to be arranged. May be repeated for credit. S/U or letter grading.

597. Examination Preparation. (2 to 8) Tutorial, to be arranged. S/U grading.

599. Ph.D. Dissertation Research and Preparation. (2 to 8) Tutorial, to be arranged. S/U grading.

Arabic

Lower Division Courses

1A-1B-1C. Elementary Standard Arabic. (5-5-5)

Lecture, six hours. Course 1A is enforced requisite to 1B, which is enforced requisite to 1C. Introduction to formal Arabic (modern standard Arabic), including listening, speaking, reading, and writing. P/NP or letter grading.

8. Elementary Standard Arabic: Intensive. (15) Lecture, 10 hours; discussion, 10 hours. Not open to students who have learned, from whatever source, enough Arabic to qualify for more advanced courses. Intensive course equivalent to courses 1A, 1B, and 1C. Introduction to fundamentals of standard Arabic, including pronunciation, grammar, and Arabic script, with emphasis on all four basic language skills—speaking, listening comprehension, reading, and writing. Offered in summer only. P/NP or letter grading.

Upper Division Courses

102A-102B-102C. Intermediate Standard Arabic. (5-5-5) Lecture, six hours. Requisite: course 1C. Course 102A is requisite to 102B, which is requisite to 102C. Intermediate formal Arabic, including listening, speaking, reading, and writing. P/NP or letter grading.

103A-103B-103C. Advanced Arabic. (4-4-4) Lecture, four hours. Requisites: courses 102A, 102B, 102C. Advanced formal Arabic, including grammar, composition, and readings from classical and modern texts. Letter grading.

M110. *Thousand and One Nights/Alf Layla Wa-Layla.* (4) (Same as Comparative Literature M110.) Lecture, three hours. Knowledge of Arabic not required. Since its appearance in Europe in 1704, *Thousand and One Nights* is most well-known work of Arabic literature in West. Examination of cycle of tales more commonly known as *Arabian Nights*, including history of its translation, contemporary oral performances of tales in Arabic-speaking world, literary emergence of vernacular language in relation to classical Arabic, and Western appropriations of tales in music, film, and novels (Ravel, Rimsky-Korsakov, Barth, Poe, and Walt Disney). P/NP or letter grading.

111A-111B-111C. Elementary Spoken Egyptian Arabic. (4-4-4) Lecture, three hours. Enforced requisite: course 1C or 8. Course 111A is enforced requisite to 111B, which is enforced requisite to 111C. Not suitable for heritage speakers. Introduction to spoken Arabic dialect of Egypt. Training in listening, speaking, and reading. P/NP or letter grading.

111S. Summer Intensive Elementary Egyptian Arabic. (4) Lecture, three hours. Knowledge of Arabic not required; not suitable for heritage speakers. Introduction to spoken Arabic dialect of Egypt. Training in listening, speaking, and reading. P/NP or letter grading.

112A-112B-112C. Advanced Spoken Egyptian Arabic. (4-4-4) Lecture, three hours. Study of Egyptian colloquial Arabic for heritage speakers or students who have completed courses 1A, 1B, 1C. P/NP or letter grading.

115. Studies in Arabic Dialectology. (4) Lecture, three hours. Introduction to one spoken dialect of Arabic, with emphasis on speaking and listening comprehension. Dialects vary from year to year based on student interest and instructor availability and may include Iraqi, Levantine, North African, or Gulf Arabic. P/NP or letter grading.

116A-116B-116C. Elementary Iraqi Arabic. (5-5-5) Lecture, five hours. Course 116A is requisite to 116B, which is requisite to 116C. Introduction to dialect of Arabic spoken in contemporary Iraq, with emphasis on conversational proficiency. Recognition and production of sounds of Iraqi Arabic and basic vocabulary, grammar, idiomatic expressions, and relevant cultural background through dialogues and other conversational exercises. P/NP or letter grading.

120. Islamic Texts. (4) Lecture, four hours. Requisite: course 103C. Readings from Qur'an, Tafsir, Hadith, Fiqh. May be repeated for credit. Letter grading.

M123. Oral Literature and Performance of Arab World. (4) (Same as Comparative Literature M123.) Lecture, three hours. Knowledge of Arabic not required. Introduction to study of living oral traditions of troubadours, storytellers, oral poets, and performers in Arabic-speaking Middle East. P/NP or letter grading.

130. Classical Arabic Texts. (4) Lecture, four hours. Requisite: course 103C. Readings from premodern literary texts, with grammatical and syntactical analysis. May be repeated for credit. Letter grading.

132. Philosophical and Kalam Texts. (4) Lecture, three hours. Requisite: course 120. Readings in premodern philosophy and theology. May be repeated for credit. P/NP or letter grading.

C141. Modern Arabic Literature. (4) (Formerly numbered 141.) Lecture, three hours. Requisite: course 102C. Conducted in English and Arabic, with all required readings in original Arabic only. Readings in modern Arabic literature, variably organized across or around particular trends, genres, topics, canonical authors, regional, or national literatures, mixing thematic and formal analyses of literary and critical texts and making use of film, video-clip, and song in approaching literary culture. May be repeated for credit. Concurrently scheduled with course C241. Letter grading.

142. Arabic Media. (4) Lecture, four hours. Requisite: course 103A. Development of facility with language of Arabic press and broadcasting. Activities include monitoring current materials via Internet; transcribing, translating, and summarizing; writing original reports in Arabic; and oral presentations and discussions. May be repeated for credit. P/NP or letter grading.

M148. Contemporary Arab Film and Song. (4) (Same as Comparative Literature M148.) Seminar, three hours. Exploration of conjunctions between contemporary Arab film and song and between popular cultures and cultures of commitment (Iltizam), with possible focus on specific genres such as realist/neo-realist Arab film; feminist Arab film or popular Arab film and song; topics such as nation, gender, and representation or democracy and human rights or censorship, reception, and resistance. Possible examination of various national cinemas such as Tunisian, Egyptian, Moroccan, Algerian, and Palestinian. Various musical genres such as Rai, Mizoued, and Hip-hop also examined in relation to emergence not only of national cinemas, national music industries, and iconic singers but also of video clip, satellite TV, star academy, and reality shows—all products of transnational and pan-Arab mass media. P/NP or letter grading.

150. Classical Arabic Literature in English. (4) Lecture, three hours. Readings in English; knowledge of Arabic not required. Survey of premodern Arabic cultural production in its political, religious, and social contexts. Coverage of pre-Islamic Arabia, rise of Islam, and major themes of Southwest Asian history, along with significant figures and moments in literature and culture of premodern period. Consideration of selected modern responses to Arabic tradition. P/NP or letter grading.

M151. Modern Arabic Literature in English. (4) (Formerly numbered 151.) (Same as Comparative Literature M167.) Lecture, three hours. Designed for upper division literature majors. Topics may include constructions of otherness in modern Arab culture; East-West debate; memory, trauma, and mourning; violence, narrative, and ethics; globalization, oil, and cultural insurgency; Arab culture in transnational context or questions of reception, exoticism, translation, and marketing. Genres may include prison narratives; novel of terror; memoirs by women and/or by refugees and exiles; 19th- and 20th-century travel narratives; Arabic romantic poetry; literature of pre-1948; rise of Arab novel. Areas may range from generic look at Arab world to narrow focus on Maghreb or one country such as Algeria, Palestine, Iraq, Lebanon, or Egypt. May also be organized around Arab literatures written in one specific language, namely English, Arabic, or French. Letter grading.

M155. Al-Andalus: Literature of Islamic Spain. (4) (Formerly numbered 155.) (Same as Comparative Literature M119.) Lecture, three hours. Study of literature of Islamic Spain to learn about interaction of Arabic and Western and Arabic and Jewish cultures and to recognize Islamic culture as vital force in European life and letters. P/NP or letter grading.

M171. Culture Area of Maghrib (North Africa). (4) (Same as Anthropology M171P and History M108C.) Lecture, three hours. Designed for juniors/seniors. Introduction to North Africa, especially Morocco, Algeria, Tunisia, and Libya, also known as Maghrib or Tamazgha. Topics include changing notions of personal, tribal, ethnic, linguistic and religious identities; colonialism; gender and legal rights, changing representations of Islam, and religions in region's public spaces. P/NP or letter grading.

180. Linguistic Analysis of Arabic. (4) Lecture, four hours. Requisite: course 102C. Linguistic description of Arabic in both its modern standard and dialect forms. Introduction to linguistic analysis of Arabic phonology, morphology, and syntax and to linguists' approaches to specific problems posed by Arabic grammar and dialectology. Letter grading.

181. Translating Arabic. (4) Seminar, three hours. Preparation: advanced proficiency in English and Arabic (at least three years of Arabic instruction or equivalent). Open to both native and nonnative speakers of English and Arabic. Training of students in methodology of translation from Arabic into English, with focus on producing accurate and readable English versions of Arabic texts from variety of fields. Close reading and written translation of Arabic texts, with review of linguistic and cultural difficulties that arise in course of translation. Texts may include classical Arabic literature (religion, historiography), modern writing (literature, media), and spoken Arabic (television, radio), based on student interest. Letter grading.

188FL. Special Studies: Readings in Arabic. (1) Seminar, one hour. Requisite: course 102C. Students must be concurrently enrolled in affiliated main course. Primary readings and additional work in Arabic to enrich and augment work assigned in main course, including reading, writing, and other exercises. May be repeated for credit. P/NP or letter grading.

197. Individual Studies in Arabic. (2 to 4) Tutorial, one hour. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

199. Directed Research or Senior Project in Arabic. (2 to 4) Tutorial, one hour. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

220. Seminar: Islamic Texts. (4) Seminar, three hours. Major Islamic thinkers and their works from classical period to modern times. Coverage of doctrines and hermeneutics of various schools of thought in Islam, such as Ahl al-sunna wa'l-jama'a, Shi'a, Mu'tazila, and Sufis. May be organized around one author and his works, multiple authors and their works, or specific topic with representative readings from various schools. Exploration of secondary literature in Arabic and other languages for student research papers. May be repeated for credit. S/U or letter grading.

M231. Texts in Judeo-Arabic. (4) (Same as Hebrew M231.) Lecture, three hours. Requisites: course 102C, Hebrew 102C. Reading of Judeo-Arabic texts by Maimonides (medieval religion, medicine, philosophy) and more recent texts in Judeo-Arabic dialects of Iraq and Egypt, with discussion of grammar and deviations from norms of classical Arabic. S/U or letter grading.

240A. Seminar: Arab Historians. (4) (Formerly numbered 240.) Seminar, three hours. Introduction to very large body of literature on medieval Islamic histo-

ry. Selected readings in Arabic that represent cross-section of Islamic historical writings, including Ibn Ishaq's *Sira*, Waqidi's *Maghazi*, Baladhuri's *Futuh*, Tabari's *Ta'rikh*, digests of Ya'qubi and Mas'udi, Ibn Khaldun's *Muqaddima*, and Maqrizi's topography. Historians studied either to determine their reliability as sources or their view of history and its theoretical foundations. Exploration of sources, research tools, and problems in Islamic history. May be repeated for credit. S/U or letter grading.

C241. Modern Arabic Literature. (4) Lecture, three hours. Requisite: course 102C. Conducted in English and Arabic, with all required readings in original Arabic only. Readings in modern Arabic literature, variably organized across or around particular trends, genres, topics, canonical authors, regional, or national literatures, mixing thematic and formal analyses of literary and critical texts and making use of film, video-clip, and song in approaching literary culture. May be repeated for credit. Concurrently scheduled with course C141. Letter grading.

250. Seminar: Premodern Arabic Literature. (4) Seminar, three hours. Readings in Arabic texts from variety of periods and genres, along with appropriate secondary literature. Topics include pre-Islamic poetry and oratory, Qur'an, Umayyad and Abbasid poetry and literary prose, Hadith and Fiqh, historiography, biography, geography, medicine, mathematics, theology, asceticism, and mysticism. May be repeated for maximum of 24 units. S/U or letter grading.

251. Seminar: Modern Arabic Literature. (4) Seminar, three hours. Requisite: course 141. Selected topics in modern and contemporary Arabic prose and poetry. May be repeated for credit. Letter grading.

M255. Literatures and Cultures of Maghreb. (4) (Same as Comparative Literature M251.) Seminar, three hours. Limited to graduate students. Examination of traditionally diverse literatures of Maghreb in their multiple and competing contexts of language and gender politics, religious and cultural formations, Pan-Arabism and postcolonial nationhood, Third-Worldism and economic development, modernity and globalization, immigration and citizenship, soccer industry and Rai music, mass media and Star Academy Maghreb, and more. Readings of literatures in English and in English translations from different Maghreb languages (particularly Arabic and French) in conjunction with theories of language and linguistic pluralism, cultural translation, deconstruction, and host of other relevant theories of gender, globalization, and postcolonial cultural studies. S/U or letter grading.

596. Directed Individual Study. (2 to 8) Tutorial, to be arranged. May be repeated for credit. S/U or letter grading.

597. Examination Preparation. (2 to 8) Tutorial, to be arranged. S/U grading.

599. Ph.D. Dissertation Research and Preparation. (2 to 8) Tutorial, to be arranged. S/U grading.

Armenian

Upper Division Courses

101A-101B-101C. Elementary Modern Western Armenian. (5-5-5) Lecture, five hours. Course 101A is recommended requisite to 101B, which is recommended requisite to 101C. Students with knowledge of Armenian should contact instructor to determine appropriate enrollment level. Armenian grammar, conversation, and exercises. P/NP or letter grading.

102A-102B-102C. Intermediate Modern Western Armenian. (5-5-5) Lecture, five hours. Recommended requisite: course 101C. Students with knowledge of Eastern or Western Armenian (from elementary or high school) should contact instructor to determine appropriate enrollment level. Reading of selected texts, composition, and conversation. Each course may be taken independently for credit. P/NP or letter grading.

103A-103B-103C. Advanced Modern Western Armenian. (4-4-4) Lecture, four hours. Recommended requisite: course 102C. Course 103A is recommended requisite to 103B, which is recommended requisite

to 103C. Students with knowledge of Eastern or Western Armenian (from elementary or high school) should contact instructor to determine appropriate enrollment level. Designed for students with advanced speaking fluency and reading abilities in Armenian. Exploration of advanced Western Armenian in following areas of competency: fluency, literacy, accuracy, and proficiency. Use of language to engage literary themes and cultural issues of historical and contemporary significance for Armenian speakers. P/NP or letter grading.

104A-104B-104C. Elementary Modern Eastern Armenian. (5-5-5) Lecture, five hours. Course 104A is recommended requisite to 104B, which is recommended requisite to 104C. Students with knowledge of Western Armenian should contact instructor to determine appropriate enrollment level. Designed for students with little or no prior knowledge of Eastern Armenian, official idiom of Republic of Armenia. Introduction to basics of grammar and conversation. P/NP or letter grading.

105A-105B-105C. Intermediate Modern Eastern Armenian. (5-5-5) Lecture, five hours. Recommended requisite: course 104C. Students with knowledge of Eastern or Western Armenian (from elementary or high school) should contact instructor to determine appropriate enrollment level. Continuing introduction to Armenian grammar, with greater attention to readings from short stories and simple newspaper articles and film viewing on video. Emphasis on improving students' self expression in idiom, both orally and in written form. Each course may be taken independently for credit. P/NP or letter grading.

106A-106B-106C. Advanced Modern Eastern Armenian. (4-4-4) Lecture, four hours. Recommended requisite: course 105C. Students with knowledge of Eastern or Western Armenian (from elementary or high school) should contact instructor to determine appropriate enrollment level. Designed for students with advanced speaking fluency and reading abilities in Armenian. Discussion of contemporary Armenian social and cultural issues through readings from critical essays, editorials, short stories, and poems written since World War II and film showings. Emphasis on enhancing students' self expression orally and in written form. Each course may be taken independently for credit. Letter grading.

110. History of Armenian Language. (4) Lecture, three hours. Requisite: course 101C or 104C. Exploration of history of Armenian language as reflected in literature created in Armenian throughout written period (5th through 20th centuries). Use of top-down approach beginning with modern state of Armenian language in its two standard versions (Western and Eastern), then retracing of historical development through formation of New Armenian (17th century), Middle Armenian (17th through 12th centuries), and earliest attested form, Grabar, literary version of ancient Armenian (11th through 5th centuries). Discussion of attempts at reconstructing major features of Armenian phonology and morphology in preliterary period. P/NP or letter grading.

130. Armenian Civilization under Bagratid Dynasty, 884 to 1064. (4) Lecture, four hours. Interdisciplinary investigation of interface between sociopolitical and economic factors in creation of works of art (literature, art, architecture, etc.) and social function these works performed in this important period of Armenian history. Letter grading.

131. Armenian Civilization in Cilician Period, 1080 to 1375. (4) Lecture, four hours. Interdisciplinary investigation of rise and fall of unique form of Armenian polity established outside homeland and examination of degree to which its social structure and cultural and aesthetic norms were impacted by those of West (Byzantium, Western Europe) and East (Crusader states, Seljuqs, Mamluks, Mongols). Letter grading.

150A-150B. Survey of Armenian Literature in English. (4-4) Lecture, three hours. Knowledge of Armenian not required. Each course may be taken independently for credit. P/NP or letter grading.

C151. Armenian Literature and Canon Formation. (4) Lecture, four hours. Discussion of fundamental themes and genres around which Armenian literary tradition evolved and modalities by which this has been transformed in course of last two centuries as result of exposure to European thought and expressive forms. Concurrently scheduled with course C251. P/NP or letter grading.

C152. Modern Armenian Drama as Vehicle for Social Critique. (4) Lecture, four hours. Readings of selected plays from 1668 to 1992 from three main genres of tragedy, comedy, and serious drama and featuring works by most significant Armenian playwrights, with focus on their role as commentators on contemporary mores and as agents for social reform. Concurrently scheduled with course C252. Letter grading.

C153. Art, Politics, and Nationalism in Modern Armenian Literature. (4) Lecture, four hours. Examination of role of literature in modern Armenian society in service to cause or causes, as propaganda for various ideologies, as art for art's sake, etc. Exploration of contrasting aesthetics implicit in these differing interpretations. Concurrently scheduled with course C253. P/NP or letter grading.

C155. Issues in Armenian American Literature and Culture. (4) Lecture, four hours. Preparation: reading knowledge of modern Eastern and Western Armenian. Theoretically informed exploration of some of most salient questions related to Armenian American community as reflected in its literature and other cultural artifacts in interaction with its pluralistic American ambience. Concurrently scheduled with course C255. Letter grading.

160A-160B. Armenian Literature of 19th and 20th Centuries. (4-4) Lecture, three hours. Requisites: courses 102A, 102B, 102C. Reading of texts and discussion of various genres of modern Armenian literature within context of Armenian cultural renaissance. P/NP or letter grading.

C166. Armenian Film and Culture. (5) Lecture, six hours. Requisite: course 101C or 104C. Overview of development of Armenian cinematography from first talkie to present, with focus on work of most seminal directors from Armenian Republic, as well as various voices from worldwide diaspora. Concurrently scheduled with course C266. P/NP or letter grading.

170. Armenian Poetry, 1880 to 1930. (4) Lecture, three hours. Requisite: course 101C or 104C. Examination of process behind creation of range and variety of poetic expression that developed in new literary formats and genres of what became standard modern Eastern and Western Armenian language in second half of 19th century. Special attention to crafting of central practitioners' individual voice, with particular consideration to poetics and aesthetics, continuity and innovation under impact of modernism, and employment of poetic structure as medium for expression of deeper philosophical values. All texts read in original language. P/NP or letter grading.

171. Variable Topics in Armenian Studies. (4) Lecture, three hours. Examination of major issues in Armenian studies. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading.

M172. Armenian Painting, 17th to 20th Century. (4) (Same as Art History M172.) Lecture, three hours. Overview of development of modern Armenian painting out of its matrix in 17th and 18th centuries. P/NP or letter grading.

M173. Medieval Armenian Miniature Painting. (4) (Same as Art History M173.) Lecture, three hours. Examination of cultural and historical impact of Armenian miniature paintings. P/NP or letter grading.

188. Variable Topics in Armenian. (4) Lecture, four hours. Departmentally sponsored experimental or temporary courses, such as those taught by visiting faculty members. May be repeated for credit with topic change. P/NP or letter grading.

197. Individual Studies in Armenian. (2 to 4) Tutorial, one hour. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. As-

signed reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

199. Directed Research or Senior Project in Armenian. (2 to 4) Tutorial, one hour. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

207. Armenian Intellectual History. (4) Lecture, three hours. Intellectual and cultural trends reflected in Armenian literature, historiography, religious and philosophical thought. S/U or letter grading.

210. History of Armenian Language. (4) Lecture, three hours. Development of Armenian language in its various stages: classical, middle, and modern. S/U or letter grading.

220. Armenian Literature of Golden Age (A.D. 5th Century). (4) Lecture, three hours. Readings of texts and discussion of literary genres; original works and those translated from Greek and Syriac. S/U or letter grading.

230A-230B-230C. Elementary Classical Armenian. (4-4-4) Lecture, three hours. Course 230A is requisite to 230B, which is requisite to 230C. Introduction to grammar of classical literary language (5th to mid-19th century) and guided readings in narrative prose texts. Letter grading.

231A-231B-231C. Intermediate Classical Armenian. (4-4-4) Lecture, three hours. Requisite: course 230C. Intensive review of grammar and reading of select prose and poetic texts. Each course may be taken independently for credit. Letter grading.

232A-232B-232C. Advanced Classical Armenian. (4-4-4) Lecture, three hours. Requisite: course 231A or 231B or 231C. In-depth reading and linguistic analysis of texts related to Philhellene School of 6th to 8th century and related works up to 19th century. Each course may be taken independently for credit. Letter grading.

250A-250B. Seminars: Armenian Literature. (4-4) Seminar, three hours. Selected topics from various periods of Armenian literature. May be repeated for credit. S/U or letter grading.

C251. Armenian Literature and Canon Formation. (4) Lecture, four hours. Discussion of fundamental themes and genres around which Armenian literary tradition evolved and modalities by which this has been transformed in course of last two centuries as result of exposure to European thought and expressive forms. Concurrently scheduled with course C151. S/U or letter grading.

C252. Modern Armenian Drama as Vehicle for Social Critique. (4) Lecture, four hours. Readings of selected plays from 1668 to 1992 from three main genres of tragedy, comedy, and serious drama and featuring works by most significant Armenian playwrights, with focus on their role as commentators on contemporary mores and as agents for social reform. Concurrently scheduled with course C152. Letter grading.

C253. Art, Politics, and Nationalism in Modern Armenian Literature. (4) Lecture, four hours. Examination of role of literature in modern Armenian society in service to cause or causes, as propaganda for various ideologies, as art for art's sake, etc. Exploration of contrasting aesthetics implicit in these differing interpretations. Concurrently scheduled with course C153. P/NP or letter grading.

C255. Issues in Armenian American Literature and Culture. (4) Lecture, four hours. Preparation: reading knowledge of modern Eastern and Western Armenian. Theoretically informed exploration of some of most salient questions related to Armenian American community as reflected in its literature and other cultural artifacts in interaction with its pluralistic American ambience. Concurrently scheduled with course C155. Letter grading.

C266. Armenian Film and Culture. (5) Lecture, six hours. Requisite: course 101C or 104C. Overview of development of Armenian cinematography from first talkie to present, with focus on work of most seminal directors from Armenian Republic, as well as various voices from worldwide diaspora. Concurrently scheduled with course C166. S/U or letter grading.

290. Seminar: Armenian Paleography. (4) Seminar, three hours. Discussion of variety of Armenian scripts and training in use of manuscripts. S/U or letter grading.

596. Directed Individual Study. (2 to 8) Tutorial, to be arranged. May be repeated for credit. S/U or letter grading.

597. Examination Preparation. (2 to 8) Tutorial, to be arranged. S/U grading.

599. Ph.D. Dissertation Research and Preparation. (2 to 8) Tutorial, to be arranged. S/U grading.

Berber

Upper Division Courses

101A-101B-101C. Elementary Berber. (4-4-4) Lecture, three hours; laboratory, two hours. Development of oral proficiency and analysis of basic grammatical structure. P/NP or letter grading.

102A-102B-102C. Advanced Berber. (4-4-4) Lecture, four hours. Requisites: courses 101A, 101B, 101C. Advanced study of Berber. Regional and stylistic variants in folk literature. P/NP or letter grading.

130. Berbers. (4) Lecture, four hours. Examination of main features of Berber societies and cultures, with particular attention to social structures and institutions on one hand, and to customs, values, and beliefs on other. Presentation of broad framework within which study of particular aspects of Berber cultures may be pursued. P/NP or letter grading.

Hebrew

Lower Division Courses

1A-1B-1C. Elementary Hebrew. (5-5-5) Lecture, five hours; laboratory, one hour. Course 1A is enforced requisite to 1B, which is enforced requisite to 1C. Introduction to modern Hebrew, including listening, speaking, reading, and writing. P/NP or letter grading.

8. Elementary Hebrew: Intensive. (15) Lecture, 10 hours; discussion, 10 hours. Intensive course equivalent to courses 1A, 1B, and 1C. Introduction to modern Hebrew, including listening, speaking, reading, and writing. Offered in summer only. P/NP or letter grading.

Upper Division Courses

102A-102B-102C. Intermediate Hebrew. (5-5-5) Lecture, five hours. Requisite: course 1C. Course 102A is requisite to 102B, which is requisite to 102C. Amplification of grammar; reading of texts from modern literature. P/NP or letter grading.

103A-103B-103C. Advanced Hebrew. (4-4-4) Lecture, three hours. Requisites: courses 102A, 102B, 102C. Students with prior knowledge of Hebrew who did not take courses 102A, 102B, and 102C should contact instructor to determine appropriate enrollment level. Designed for students with intermediate speaking fluency and reading abilities in Hebrew. Introduction to modern Hebrew literary texts. P/NP or letter grading.

110A-110B. Introduction to Biblical Hebrew. (4-4) Lecture, three hours. P/NP or letter grading. **110A.** Phonology, morphology, and structure of biblical Hebrew. **110B.** Requisite: course 110A. Continuation of course 110A. Readings of biblical prose texts.

110C. Readings in Biblical Hebrew. (4) Lecture, three hours. Requisites: courses 110A, 110B. Continuation of course 110B. Reading of prose texts from Hebrew Bible, particularly from Former Prophets (Joshua-Kings). Introduction to certain aspects of historical grammar of biblical Hebrew. Reading and translation of variety of texts from different historical

periods of Hebrew language, including texts from Archaic, Standard, and Late periods. Increased understanding of Hebrew verbal system, including different verbal patterns, their morphology, and syntactic function in biblical Hebrew prose. P/NP or letter grading.

111A. Israeli Society through Hebrew Song and Video. (4) Lecture, three hours; laboratory, one hour. Requisite: course 1C. Use of contemporary Israeli song and video to explore Israeli collective imagination and various Israeli sociocultural issues to familiarize students with different aspects of Israeli daily life and popular culture, while teaching them multiple speech acts in both formal and informal contexts and enriching their Hebrew vocabulary and its retention. P/NP or letter grading.

111B-111C. Conversational Hebrew. (3-3) Lecture, two hours; laboratory, one hour. Requisite: course 111A. Course 111B is requisite to 111C. Vocabulary used in daily life, different speech acts in both formal and informal contexts, and various Israeli sociocultural issues using different kinds of media, such as video, Internet, and newspapers. P/NP or letter grading.

112. Readings in Modern Scholarly Hebrew. (2) Seminar, two hours. Requisite: course 102C. In-depth reading and discussion of selected scholarly articles in modern Hebrew for various disciplines: Bible study, Jewish history and folklore, sociology, and literary criticism. Development of student proficiency in vocabulary, terminology, and ideas in these fields while enhancing comprehension of complex syntactical structures in Hebrew. May be repeated for credit. P/NP or letter grading.

120. Biblical Texts. (4) Lecture, three hours. Requisites: courses 102A, 102B, 102C. Translation and analysis of biblical texts, with attention to aspects of grammar, style, and interpretation.

125. Hebrew Bible with Medieval Commentaries. (4) Lecture, three hours. Requisite: course 103C. Hebrew Bible with the commentaries of Rashi, Ibn Ezra, and/or Nahmanides. May be repeated for maximum of 16 units. Letter grading.

130. Rabbinic Texts. (4) Lecture, three hours. Requisites: courses 103A, 103B, 103C. Readings in Mishnah, Talmud, and/or Midrash. May be repeated for credit.

135. Medieval Hebrew Texts. (4) Lecture, three hours. Requisites: courses 103A, 103B, 103C. Readings in medieval Hebrew prose and poetry. May be repeated for maximum of 16 units. P/NP or letter grading.

C140. Modern Hebrew Poetry and Prose. (4) Lecture, three hours. Requisites: courses 102A, 102B, and 103C, or equivalent knowledge of Hebrew. Study of major Hebrew writers of past 100 years. May be repeated for credit. Concurrently scheduled with course C240. Letter grading.

160. Hebrew Essay. (4) Lecture, three hours. Requisites: courses 103A, 103B, 103C. Hebrew essay from its rise in Europe in the late 18th century to contemporary Israeli essay. Study of literary, political, philosophical, and scholarly essay. May be repeated for credit.

170. Dead Sea Scrolls. (4) Lecture, three hours. Requisite: course 110C. Readings in Hebrew scrolls from Dead Sea, with focus on grammar, paleography, and biblical interpretation in Dead Sea Scrolls. May be repeated for credit. P/NP or letter grading.

180A-180B. Survey of Hebrew Grammar. (4-4) Lecture, three hours. Requisites: courses 102A, 102B, 102C. Descriptive and comparative study of Hebrew grammar: phonology and morphology. Topics include development of Hebrew language from biblical times to present day, its relation to Arabic and other Semitic languages, methods of language expansion in Israeli Hebrew, traditional pronunciation of Hebrew by various Jewish communities, Hebrew contribution to other Jewish languages (Yiddish, Ladino, Judeo-Arabic). P/NP or letter grading.

188FL. Special Studies: Readings in Hebrew. (2) Seminar, two hours. Requisite: course 102C. Students must be concurrently enrolled in an affiliated main course. Primary readings and advanced training in Hebrew. Additional work in Hebrew to enrich and

augment work assigned in main course, including reading, writing, and other exercises in Hebrew. P/NP or letter grading.

197. Individual Studies in Hebrew. (2 to 4) Tutorial, one hour. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

199. Directed Research or Senior Project in Hebrew. (2 to 4) Tutorial, one hour. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

210. History of Hebrew Language. (4) Seminar, three hours. Development of Hebrew language in its classical period from archaic poetry through rabbinic Hebrew. Special attention to sociology of Hebrew: literacy, language ideology, register, dialect. Letter grading.

220. Studies in Hebrew Biblical Literature. (4) Seminar, three hours. Critical study of Hebrew texts in relation to major versions; philological, comparative, literary, and historical study of various biblical books. May be repeated for credit. S/U or letter grading.

225. Studies in Dead Sea Scrolls. (2 or 4) Seminar, three hours. Requisite: course 120. Critical study of Dead Sea Scrolls, with attention to history of biblical interpretation and role of Dead Sea Scrolls in formative Judaism. Reading in original manuscripts from Dead Sea Scrolls. May be repeated for credit. S/U or letter grading.

230. Rabbinic Hebrew Literature. (4) Seminar, three hours. May be repeated for credit. S/U or letter grading.

M231. Texts in Judeo-Arabic. (4) (Same as Arabic M231.) Lecture, three hours. Requisites: course 102C, Arabic 102C. Reading of Judeo-Arabic texts by Maimonides (medieval religion, medicine, philosophy) and more recent texts in Judeo-Arabic dialects of Iraq and Egypt, with discussion of grammar and deviations from norms of classical Arabic. S/U or letter grading.

235. Hebrew Literature of Second Temple Period. (4) Seminar, three hours. Designed for students who have basic language skills and capacities necessary for reading Biblical Hebrew or Rabbinic Hebrew. Reading, analysis, and interpretation of Hebrew literature composed during Second Temple period. Relevant sources include Chronicles, Ezra-Nehemiah, Ecclesiastes, Ben Sira, Daniel, Dead Sea Scrolls, and other documents from Judean desert, and various apocrypha and pseudepigrapha. Special attention to historical development of Hebrew language and literature in relation to both earlier biblical sources, styles, grammar, and syntax and to subsequent Rabbinic writings. Course builds following skills: reading unpointed texts, mastering distinctive elements of vocabulary, idiom, and syntax of Second Temple Hebrew, and analyzing relationships between biblical and postbiblical sources. May be repeated for credit. S/U or letter grading.

C240. Modern Hebrew Poetry and Prose. (4) Lecture, three hours. Requisites: courses 103A, 103B, and 103C, or equivalent knowledge of Hebrew. Study of major Hebrew writers of past 100 years. May be repeated for credit. Concurrently scheduled with course C140. Letter grading.

241. Studies in Modern Hebrew Prose Fiction. (4) Studies in specific problems and trends in Hebrew prose fiction of the last two centuries. May be repeated for credit.

242. Studies in Modern Hebrew Poetry. (4) Studies in specific problems and trends in Hebrew poetry of the last two centuries.

596. Directed Individual Study. (2 to 8) Tutorial, to be arranged. May be repeated for credit. S/U or letter grading.

597. Examination Preparation. (2 to 8) Tutorial, to be arranged. S/U grading.

599. Ph.D. Dissertation Research and Preparation. (2 to 8) Tutorial, to be arranged. S/U grading.

Iranian

Lower Division Courses

1A-1B-1C. Elementary Persian. (5-5-5) Lecture, six hours. Course 1A is enforced requisite to 1B, which is enforced requisite to 1C. Not open to students with prior knowledge of Persian. P/NP or letter grading.

8. Elementary Persian: Intensive. (15) Lecture, 10 hours; discussion, 10 hours. Not open to students who have learned, from whatever source, enough Persian to qualify for more advanced courses. Intensive course equivalent to courses 1A, 1B, and 1C. Introduction to fundamentals of Persian, including pronunciation, grammar, and Persian script, with emphasis on all four basic language skills—speaking, listening comprehension, reading, and writing. Offered in summer only. P/NP or letter grading.

10A-10B-10C. Persian Conversation. (2-2-2) Lecture, three hours. Systematic and structured Persian conversation. P/NP or letter grading.

20A-20B-20C. Accelerated Elementary Persian. (6-6-6) Lecture, four hours; discussion two hours; laboratory, 30 minutes per day. Preparation: some knowledge of spoken Persian. Course 20A is enforced requisite to 20B, which is enforced requisite to 20C. Intensive and thorough study of fundamental structure of Persian grammar; reading from a wide range of classical and modern poetry and prose compositions. P/NP or letter grading.

Upper Division Courses

102A-102B-102C. Intermediate Persian. (5-5-5) Lecture, six hours. Requisite: course 1C or 20C. Course 102A is requisite to 102B, which is requisite to 102C. P/NP or letter grading.

103A-103B-103C. Advanced Persian. (4-4-4) Lecture, three hours. Requisite: course 102C. Students who successfully complete courses 20A, 20B, 20C with grades of A may be permitted to enroll. Each course may be taken independently for credit. **103A.** Introduction to Classical Persian Poetry; **103B.** Introduction to Classical Persian Prose; **103C.** Introduction to Contemporary Persian Poetry and Prose.

104. Philosophical Texts. (4) Lecture, three hours. Readings in English. Introduction to wide selection of philosophical texts in translation. Identification of major philosophical themes in ontology, epistemology, psychology, and cosmology through texts, with study in detail. P/NP or letter grading.

M110A-M110B-M110C. Iranian Civilization. (4-4-4) (Same as Ancient Near East M110A-M110B-M110C and History M110A-M110B-M110C.) Lecture, three hours; discussion, one hour (when scheduled). History of ancient Iran from rise of Elam to end of Sasanian dynasty—Elamite civilization and Mede, Achaemenid, Arsacid, and Sasanian Empires. Emphasis on ancient Iran, but may be offered for early Islamic period. P/NP or letter grading.

111A-111B-111C. Elementary Kurdish. (4-4-4) Lecture, three hours; laboratory, two hours. Proficiency-based course in basic grammar of literary Kurdish (Sorani). Graded readings, translation, composition (level one), conversation (levels one and two).

120. Comparative Study of Six Major Persian Poets. (4) Lecture, two hours; discussion, one hour. Preparation: knowledge of Persian. Lectures in Persian, readings in English and Persian. Comparative study of six major Persian poets from the 10th to 14th century who shaped the sense of Persian identity and delineated chief distinguishing characteristics of Persian thought and culture. P/NP or letter grading.

130. Intellectual History of Jews of Persia. (4) Lecture, three hours. Readings in English. Introduction to intellectual history of Jews in Persia by highlighting select areas of Judeo-Persian studies and focusing on various authors and their work. P/NP or letter grading.

131. Introduction to Judeo-Persian: Language and Culture. (4) Lecture, three hours. Preparation: knowledge of Persian equivalent to course 102C. Introduction to history of Judeo-Persian literature and culture to prepare students to read Judeo-Persian texts. P/NP or letter grading.

140. Persian Belles Lettres (*Adabiyât*). (4) Lecture, three hours. Requisite: course 102C. Study of major Persian poets and prose writers: prose—Sohrwardi, Hamadâni, Nasafi, Irâqi, and others; poetry—Hâfez, Sa'di, Rûmi, Bahâr, Dehkhoda, and others. May be repeated for credit with consent of instructor. P/NP or letter grading.

141. Persian Analytical Prose. (4) Lecture, three hours. Requisite: course 102C. Study of selected analytical and expository prose texts, with emphasis on philosophy, sciences, literary criticism, and history. May be repeated for credit with consent of instructor. P/NP or letter grading.

142. Persian Popular Ethics. (4) Lecture, three hours. Requisite: course 102C. Study of major Persian works on popular ethics that have helped shape normative social, cultural, and political values in Iranian civilization. May be repeated for credit with consent of instructor. P/NP or letter grading.

150A-150B. Survey of Persian Literature in English. (4-4) Lecture, three hours. Knowledge of Persian not required. Each course may be taken independently for credit.

161A-161B-161C. Elementary Middle Iranian. (4-4-4) Lecture, three hours. Preparation: knowledge of Persian desirable. Course 161A is requisite to 161B, which is requisite to 161C. Studies in grammars and texts of Middle Iranian languages (e.g., Middle Persian, Parthian, Sogdian, Khotanese, Bactrian). May be repeated for credit with consent of instructor. P/NP or letter grading.

169. Civilization of Pre-Islamic Iran. (4) Survey of Iranian culture from the beginning through Sasanian period.

170. Religion in Ancient Iran. (4) History of religion in Iran from the beginning to the Mohammedan conquest; Indo-Iranian background, Zoroastrianism, Manichaeism, Mazdakism.

181A-181B. Introduction to Modern Iranian Studies. (4-4) Lecture, three hours. Requisites: courses 1A, 1B, 1C. Survey of Iranian languages. Comparative and historical grammar. P/NP or letter grading.

187. Variable Topics in Iranian Studies. (4) Lecture, three hours. Variable topics; consult *Schedule of Classes* for topics to be offered in specific term. May be repeated for credit. P/NP or letter grading.

188FL. Special Studies: Readings in Iranian. (2) Seminar, two hours. Requisite: course 102C. Students must be concurrently enrolled in affiliated main course. Primary readings and advanced training in Iranian. Additional work in Iranian to enrich and augment work assigned in main course, including reading, writing, and other exercises in Iranian. P/NP or letter grading.

197. Individual Studies in Iranian. (2 to 4) Tutorial, one hour. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

199. Directed Research or Senior Project in Iranian. (2 to 4) Tutorial, one hour. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

M210. Topics in Ancient Iranian History. (4) (Same as Ancient Near East M208 and History M210.) Seminar, three hours. Varying topics on Elamite, Achaemenid, Arsacid, and Sasanian history. May be repeated for credit. S/U or letter grading.

220A-220B. Classical Persian Texts. (4) Lecture, three hours. Requisites: courses 103A, 103B, 103C. Study of selected classical Persian texts. Each course may be taken independently for credit.

221. Rumi, Mystic Poet of Islam. (4) Seminar, three hours. Requisite: course 220A or 220B. Study of life and works of Rumi in context of interaction of Sufism and poetic creativity. May be repeated twice for credit.

M222A-M222B. Vedic. (4-4) (Same as South Asian M222A-M222B.) Lecture, three hours. Preparation: knowledge of Sanskrit equivalent to South Asian 110C. Characteristics of Vedic dialect and readings in Rig-Vedic hymns. Only course M222B may be repeated for credit. S/U or letter grading.

M230A-M230B. Old Iranian. (4-4) (Same as Indo-European Studies M230A-M230B.) Lecture, four hours. Studies in grammars and texts of Old Persian and Avestan. Comparative considerations. Only course M230B may be repeated for credit. S/U or letter grading.

231A-231B-231C. Advanced Middle Iranian. (4-4-4) Lecture, three hours. Requisite: course 161C. Course 231A is requisite to 231B, which is requisite to 231C. Further studies in grammars and texts of Middle Iranian languages (e.g., Middle Persian, Parthian, Sogdian, Khotanese, Bactrian). May be repeated for credit with consent of instructor. S/U or letter grading.

250. Seminar: Classical Persian Literature. (4) Seminar, three hours. Requisites: courses 103A, 103B, 103C, 199. May be repeated twice for credit.

251. Seminar: Contemporary Persian Literature. (4) Seminar, three hours. Requisite: course 140. Studies in specific problems and trends in Persian poetry and prose in the 20th century. May be repeated twice for credit.

596. Directed Individual Study. (2 to 8) Tutorial, to be arranged. May be repeated for credit. S/U or letter grading.

597. Examination Preparation. (2 to 8) Tutorial, to be arranged. S/U grading.

599. Ph.D. Dissertation Research and Preparation. (2 to 8) Tutorial, to be arranged. S/U grading.

Islamics

Upper Division Courses

110. Introduction to Islam. (5) Lecture, three hours; discussion, one hour. Genesis of Islam, its doctrines, and practices, with readings from the Qur'an and hadith; schools of law and theology; piety and Sufism; reform and modernism. P/NP or letter grading.

130. Shi'a in Islamic History. (4) Seminar, three hours; discussion, one hour. Rise and development of Shi'a Islam, its doctrines, and practices; major branches: Twelvers, Ismailis, Zaydis; their contribution to Islamic thought and civilization; modern trends of reinterpretation and reform. Letter grading.

151. Contemporary Islamic Thought. (4) Lecture, 90 minutes; discussion, 90 minutes. Recommended requisite: course 110. Based on original writings of major Islamic thinkers in English translation, provides balanced picture of enormous ideological variety found in contemporary Muslim world. Examination of representative writings from wide spectrum of modern Islamic intellectuals and writers. Letter grading.

197. Individual Studies in Islamic Studies. (2 to 4) Tutorial, one hour. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

199. Directed Research or Senior Project in Islamic Studies. (2 to 4) Tutorial, one hour. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

201. Arabo-Islamic Sciences. (4) Seminar, three hours. Preparation: good reading knowledge of Arabic, English, and one other Western language. Comprehensive coverage of Arabo-Islamic sciences that formed matrix of Islamic education. Survey of most recent developments in following disciplines: Arabic language and literature, Qur'anic sciences, traditions, jurisprudence, theology, and Sufism. Letter grading.

596. Directed Individual Study. (2 to 8) Tutorial, to be arranged. May be repeated for credit. S/U or letter grading.

597. Examination Preparation. (2 to 8) Tutorial, to be arranged. S/U grading.

598. M.A. Thesis Research and Preparation. (2 to 8) Tutorial, to be arranged. S/U or letter grading.

599. Ph.D. Dissertation Research and Preparation. (2 to 8) Tutorial, to be arranged. S/U grading.

Jewish Studies

Lower Division Courses

10. Social, Cultural, and Religious Institutions of Judaism. (5) Lecture, three hours; discussion, one hour. Judaism's basic beliefs, institutions, and practices. Topics include development of biblical and rabbinic Judaism; concepts of god, sin, repentance, prayer, and the messiah; history of Talmud and synagogue; evolution of folk beliefs and year-cycle and life-cycle practices. P/NP or letter grading.

75. Modern Hebrew Literature Made into Films. (5) (Formerly numbered 175.) Lecture, four hours; discussion, one hour. Reading, analysis, and discussion of modern Hebrew literature that was made into films, including literary works of prominent Israeli authors (S. Yizhar, A.B. Yehoshua, Amos Oz, and Yitzhak Ben Ner) that were translated to English and had filmic adaptations. Letter grading.

Upper Division Courses

M111E. Ethnic Groups and Their Bibliographies: Jewish History and Culture. (4) (Same as Information Studies M111E.) Basic reference sources on specific topics on Judaica, ranging from biblical studies to the Holocaust to Jewish life in the U.S.

130. Modern Jewish Religious Movements and Their Ideologies. (4) Lecture, three hours. Introduction to and overview of Jewish religious movements and evolution of their ideologies in the Western world from time of the Enlightenment to the present.

135. Jewish Law. (5) Lecture, three hours. Introduction to Jewish law from biblical literature to modern legal systems. Comparison of Jewish legal systems to modern secular systems and discussion of ethical dimensions of legal systems. P/NP or letter grading.

140A-140B. American Jewish History. (4-4) Lecture, three hours. Examination of social and cultural history of American Jewish community from its inception to the present, with emphasis on integration of successive immigrants and development of institutions. P/NP or letter grading. **140A.** 1654 to 1914; **140B.** 1914 to the Present.

141. Modern Anti-Semitism. (4) Lecture, three hours. Examination of modern anti-Semitism from the 18th century to the present; comparison of modern racist ideologies with premodern theories; case studies (e.g., Dreyfus affair, Belliss Trail, Holocaust); Jewish reactions to these phenomena.

142. History and Institutions of State of Israel. (4) Lecture, three hours. Study of social and cultural development of State of Israel from its pre-state institutional structures to the present, with emphasis on major trends, personalities, and ideologies, and state's position in wider framework of modern Jewish history.

143. Introduction to Jewish Folklore. (4) Lecture, three hours. Nature of Jewish folklore; narrative, folk song, folk art, folk religion, and methods and perspectives used in their analysis. P/NP or letter grading.

M150A-150B. Hebrew Literature in English. (4-4) Lecture, three hours. Each course may be taken independently for credit. **M150A.** Literary Traditions of Ancient Israel: Bible and Apocrypha. (Same as Comparative Literature M101.) Study of literary culture of ancient Israel through examination of principal compositional strategies of Hebrew Bible and Apocrypha (read in translation). P/NP or letter grading. **150B.** Rabbinic Judaism. Topics include emergence of rabbinic Judaism; its original literary forms; rabbinic worldview; forms of medieval rabbinic literature; modern Jewish religious movements and their attitude to rabbinic Judaism.

M151A-151B. Modern Jewish Literature in English. (4-4) Lecture, three hours. Each course may be taken independently for credit. P/NP or letter grading.

M151A. Diaspora Literature. (Same as Comparative Literature M166.) Study of literary responses of Jews to modernity, its challenges, and threats. Readings in texts originally written in English or translated from Hebrew, Yiddish, German, Russian, French, and Italian. Analysis of formal aspects of each work. **151B.** Israeli Literature. Study of translations from Hebrew literature written in Israel and reflecting cardinal facets of Israeli life: social issues, security problems, identity of the state, role of individual. Analysis of formal aspects of each work.

155. Jewish Mysticism, Magic, and Kabbalah. (4) Lecture, three hours. Exploration of types of Jewish mystical thought and practice from Hebrew Bible to medieval Kabbalah and its modern offshoots. P/NP or letter grading.

M162. Israel Seen through Its Literature. (4) (Same as Comparative Literature M162.) Lecture, three hours. Attempt to impart profound understanding of Israel as seen through its literature. Examination of variety of literary texts—stories, novels, and poems—and reading of them in context of their historical backgrounds. P/NP or letter grading.

170. Dead Sea Scrolls and Early Judaism. (4) Lecture, three hours. Introduction to Dead Sea Scrolls in English translation. Survey of literature, community of Khirbet Qumran, and their place in early Judaism. P/NP or letter grading.

177. Variable Topics in Jewish Studies. (4) Lecture, three hours. Variable topics; consult *Schedule of Classes* for topics to be offered in specific term. May be repeated for credit. P/NP or letter grading.

M181. Topics in Jewish History. (4) (Same as History M181.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of major issues in Jewish history. May be repeated for maximum of 16 units with topic and/or instructor change. P/NP or letter grading.

M182A. Ancient Jewish History from Patriarchs to Rabbis. (4) (Same as History M182A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of social, political, and religious developments. P/NP or letter grading.

M182B. Between Crescent and Cross: Jewish Middle Ages. (4) (Same as History M182B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Exploration of unfolding of Jewish history from rise of Christianity to expulsion of Jews from Spain in 1492. P/NP or letter grading.

M182C. Jewish History, Spanish Expulsion to 1881. (4) (Same as History M182C.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of early modern Jewish history beginning with enormously repercussive expulsion of Jews from Spain in 1492, followed

by transformations in Jewish society and identity over five centuries in Europe and Middle East, and concluding with nationalism. P/NP or letter grading.

M182D. European Jewry, 1881 to Present. (4) (Same as History M182D.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of major social, economic, and political factors that shaped lives of Europe's Jews from outbreak of First World War to present. Emphasis on diverse Jewish communities of interwar Europe, fate of Jews under Nazis, and character of post-war Jewish community. P/NP or letter grading.

M182E-M182F. Jewish Intellectual History. (4-4) (Same as History M182E-M182F.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading.

M182E. Medieval Period. Examination of three intellectual worldviews that competed for hegemony in medieval Jewish world—rabbinic Judaism, medieval rationalism as embodied in philosophy, and cabala. **M182F. Modern Period.** Exploration of some of most important currents and figures in Jewish intellectual history from 18th century to present.

M182G. Spirit of Secularism: Jewish Cultures in Secular Age. (4) (Same as History M182G.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of emergence of distinct forms of Jewish culture in modern age, particularly those that challenge traditional forms of Jewish religious culture (e.g., laws, customs, or rituals). P/NP or letter grading.

M184A. Jewish Civilization: Encounter with Great World Cultures. (4) (Same as History M184A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Exploration of dynamic and millennia-old interaction of Jews with great world cultures. Creative adaptations that have lent Jewish culture its distinct and various forms. P/NP or letter grading.

M184B. History of Anti-Semitism. (4) (Same as History M184B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of origins and historical development of anti-Semitism. P/NP or letter grading.

M184C. American Jewish Experience. (4) (Same as History M184C.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Experience of Jews in America, both historical and contemporary. P/NP or letter grading.

M184D. History of State of Israel, 1948 to Present. (4) (Same as History M184D.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of history of State of Israel from 1948 to present. P/NP or letter grading.

M187. Holocaust in Literature. (4) (Same as Comparative Literature M165.) Lecture, three hours. Investigation of how Holocaust informs variety of literary and cinema works and raises wide range of aesthetic and moral questions. P/NP or letter grading.

191. Variable Topics Research Seminars: Jewish Studies. (4) Seminar, three hours. Research seminar on selected topics. Reading, discussion, and development of culminating project. May be repeated for credit. P/NP or letter grading.

197. Individual Studies in Jewish Studies. (2 to 4) Tutorial, one hour. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

199. Directed Research or Senior Project in Jewish Studies. (2 to 4) Tutorial, one hour. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Near Eastern Languages

Lower Division Courses

M20. Visible Language: Study of Writing. (5) (Same as Asian M20, Indo-European Studies M20, Slavic M20, and Southeast Asian M20.) Lecture, three hours; discussion, one hour. Consideration of concrete means of language representation in writing systems. Earliest representations of language known are those of Near East dating to end of 4th millennium B.C. While literate civilizations of Egypt, Indus Valley, China, and Mesoamerica left little evidence of corresponding earliest developments, their antiquity and, in case of China and Mesoamerica, their evident isolation mark these centers as loci of independent developments in writing. Basic characteristics of early scripts, assessment of modern alphabetic writing systems, and presentation of conceptual basis of semiotic language representation. Origins and development of early non-Western writing systems. How Greco-Roman alphabet arose in 1st millennium B.C. and how it compares to other modern writing systems. P/NP or letter grading.

50A. First Civilizations. (5) Lecture, three hours; discussion, one hour. Survey of great civilizations of ancient Near East—Egypt, Israel, and Mesopotamia—with attention to emergence of writing, monotheism, and urban societies. Letter grading.

50B. Origins of Judaism, Christianity, and Islam. (5) Lecture, three hours; discussion, one hour. Survey of formative period for monotheism—first millennium of Common Era in the Middle East—and emergence of Judaism, Christianity, and Islam. Letter grading.

50C. Modern Middle Eastern Cultures. (5) Lecture, three hours; discussion, one hour. Survey of modern Middle Eastern cultures through readings and films from Arab countries, Iran, Turkey, and Israel. Letter grading.

Graduate Courses

200. Bibliography and Method of Near Eastern Languages and Literatures. (4) Lecture, two hours. Required for M.A. degree. Introduction to bibliographical resources and training in methods of research in various areas of specialization offered by department. May be repeated for credit.

201. Study of Religion: Theory and Method. (4) Seminar, three hours. Preparation: familiarity with at least two major world religions. Introduction to variety of theories and methods used in academic study of religion. In attempt to demonstrate importance that historical, cultural, and social exigencies play in development of religious traditions, discussion of theories comparatively and in their historical context, with focus on presuppositions and core concepts and implications of each theory. Letter grading.

210. Survey of Afro-Asiatic Languages. (4) Lecture, three hours. Survey of structures of a number of representative languages from various major branches of Hamito-Semitic (Afro-Asiatic) language family.

241. Folklore and Mythology of Near East. (4) Lecture, two hours. S/U or letter grading.

290. Seminar: Paleography. (4) Seminar, three hours. Provides students with ability to cope with varieties of manuscripts.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

501. Cooperative Program. (2 to 8) Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. Directed Individual Study. (2 to 8) Tutorial, to be arranged. May be repeated for credit. S/U or letter grading.

597. Examination Preparation. (2 to 8) Tutorial, to be arranged. S/U grading.

599. Ph.D. Dissertation Research and Preparation. (2 to 8) Tutorial, to be arranged. S/U grading.

Semitics

Upper Division Courses

110. Neo-Aramaic. (4) Lecture, three hours. Grammar and reading of selected texts (folktales, homilies, songs) in modern Aramaic dialects of the Jews and Christians of Kurdistan.

115. Syriac. (4) Lecture, two hours. Morphology and syntax of Syriac language, introductory reading.

130. Biblical Aramaic. (4) Lecture, three hours. Requisites: Hebrew 102A, 102B, 102C. Grammar of biblical Aramaic and reading of texts.

140A-140B. Elementary Akkadian. (4-4) Lecture, three hours. Elementary grammar and reading of texts in standard Babylonian.

141. Advanced Akkadian. (4) Lecture, three hours. Old Babylonian syntax; reading of basic Old Babylonian texts.

142. Akkadian Literary Texts. (4) Lecture, three hours. Selected readings from Akkadian myths and epics, with introduction to historical tradition of the works and their literary structure.

197. Individual Studies in Semitics. (2 to 4) Tutorial, one hour. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

199. Directed Research or Senior Project in Semitics. (2 to 4) Tutorial, one hour. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

210. Ancient Aramaic Dialects. (4) Lecture, three hours. Requisite: course 130. Reading of surviving inscriptions and papyri. Texts include Old Aramaic inscriptions, Egyptian Aramaic texts, Qumran Aramaic, and Targumic Aramaic. May be repeated for credit. S/U or letter grading.

215B. Syriac. (4) Lecture, two hours. Morphology and syntax of Syriac language; readings in Syriac translation of Bible and Syriac literature. May be repeated for credit. S/U or letter grading.

220A-220B. Ugaritic. (4-4) Lecture, two hours. Requisites: Hebrew 102A, 102B, 102C. Study of Ugaritic language and literature. Only course 220B may be repeated for credit. S/U or letter grading.

225. Phoenician. (4) Lecture, two hours. Requisites: Hebrew 102A, 102B, 102C. Study of Phoenician language and inscriptions. May be repeated for credit. S/U or letter grading.

230. Seminar: Northwest Semitic Languages and Literatures. (4) Seminar, two hours. May be repeated for credit. S/U or letter grading.

240. Seminar: Akkadian Language. (4) Seminar, two hours. Readings of texts from various dialects of Akkadian; selected problems in linguistic analysis of Akkadian dialects. May be repeated for credit. S/U or letter grading.

240X. Seminar: Akkadian Language. (1) Seminar, two hours. Readings of texts from various dialects of Akkadian; selected problems in linguistic analysis of Akkadian dialects. Course for students who participate regularly in class meetings but without the homework required in course 240. May be repeated for credit. S/U grading.

241. Seminar: Akkadian Literature. (4) Seminar, two hours. Readings of texts from various Akkadian literary genres; selected problems in literary history and stylistic analysis. May be repeated for credit. S/U or letter grading.

241X. Seminar: Akkadian Literature. (1) Seminar, two hours. Readings of texts from various Akkadian literary genres; selected problems in literary history and stylistic analysis. Course for students who participate regularly in class meetings but without the homework required in course 241. May be repeated for credit. S/U grading.

280A-280B-280C. Seminars: Comparative Semitics. (4-4-4) Seminar, two hours. S/U or letter grading.

596. Directed Individual Study. (2 to 8) Tutorial, to be arranged. May be repeated for credit. S/U or letter grading.

597. Examination Preparation. (2 to 8) Tutorial, to be arranged. S/U grading.

599. Ph.D. Dissertation Research and Preparation. (2 to 8) Tutorial, to be arranged. S/U grading.

Turkic Languages

Upper Division Courses

101A-101B-101C. Elementary Turkish. (5-5-5) Lecture, five hours. Course 101A is requisite to 101B, which is requisite to 101C. Grammar, reading, conversation, and elementary composition drills. P/NP or letter grading.

102A-102B-102C. Advanced Turkish. (4-4-4) Lecture, five hours. Requisites: courses 101A, 101B, 101C. Continuing study of grammar, conversation, and composition. Readings in modern literature and social science texts.

111A-111B-111C. Elementary Uzbek. (4-4-4) Lecture, three hours; laboratory, two hours. Elementary grammar, reading, and composition exercises; elementary conversation.

112A-112B-112C. Advanced Uzbek. (4-4-4) Lecture, three hours; laboratory, two hours. Descriptive Uzbek grammar, reading, and analysis of Uzbek literary and folkloric texts. High-style composition and conversation.

114A-114B-114C. Bashkir. (4-4-4) Lecture, three hours. Requisite: course 102A. Grammar, reading of literary and folkloric texts.

115A-115B-115C. Elementary Azeri. (4-4-4) Knowledge of Russian, Turkish, and Iranian helpful. Grammatical competence at elementary level; knowledge of basic facts of Azeri grammar; reading competence with help of dictionary; ability to write simple compositions; basic conversational skill.

116A-116B-116C. Advanced Azeri. (4-4-4) Lecture, three hours; discussion, one hour; laboratory, one hour. Preparation: placement test. Proficiency-based course in descriptive Azeri grammar. Reading and analysis of Azeri literary and folkloric texts in new writing system. High-style composition and conversation. Letter grading.

120A-120B-120C. Descriptive Grammar of Modern Literary Uzbek. (4-4-4) Lecture, three hours; discussion, one hour; laboratory, one hour. Requisites: courses 102A, 102B, and 102C, or 111A, 111B, and 111C, or 180. Systematic and comprehensive grammatical survey of modern literary Uzbek, official language of the newly independent Republic of Uzbekistan. Phonemics, morphology, syntax, paremiology, and lexicology analyzed on today's native material. Letter grading.

160. Turkish Tradition. (4) Lecture/discussion. Preparation: entrance examination. Survey of cultural history of the Turks, as seen primarily through their literature, from their early history to the present.

165. Islamic Literary Heritage of Central Asia. (4) Lecture, two hours; discussion, one hour. Systematic survey of Islamic documents produced in Turkish and Persian in Central Asia, with reading of primary sources in English translation. Study of special characteristics of Central Asian Islam.

170. Turco-Mongolian Nomadic Empires. (4) Lecture, three hours. Required of students in Turkic program. Survey of history of Turkic and Mongolian dominions from the 3rd century B.C. to A.D. 19th century (Hsiung-nu, Hsien-pi, Juan-Juan, T'u-Chueh, Uyghur, Khitan, Karakhanid, Seljuq, Kara-Khitay, Khorazmian, Jengiz-Khanite).

180. Modern Turkic Languages and Peoples. (4) Lecture, three hours. Required of students in Turkic program and recommended for students in Soviet studies. Ethnic and linguistic survey of the Turkic peoples.

197. Individual Studies in Turkic. (2 to 4) Tutorial, one hour. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

199. Directed Research or Senior Project in Turkic. (2 to 4) Tutorial, one hour. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

210A-210B-210C. Introduction to Ottoman. (4-4-4) Lecture, three hours. Introduction to literary language of Ottoman Empire from its foundation in the 14th century to its overthrow in the 20th century. For students of history, literature, and religion of the Balkans, Near East, and Central Asia. Topics include Arabic script as applied to Ottoman; Arabic and Persian elements in grammar and vocabulary. Readings of historical and literary texts.

211. Ottoman Diplomatics. (4) Lecture, three hours. Requisites: courses 210A, 210B, 210C. Organization and contents of Ottoman archives; reading and discussion of documents and registers. Introduction to use of Ottoman archive materials as a source for historical research.

220A-220B-220C. Classical Uzbek (Chagatay). (4-4-4) Lecture, three hours. Requisites: courses 101A, 101B, and 101C, or 111A, 111B, and 111C, or Iranian 102A, 102B, and 102C, or Arabic 102A, 102B, and 102C, or Hebrew 102A, 102B, and 102C. Language of classical Central Asian Turkic literature. Descriptive and historical grammar, text analysis, translation, and composition drills.

225A-225B-225C. Old Turkic: Turk and Uygur. (4-4-4) Lecture, three hours. Requisite: course 180. Textual and linguistic analysis of Turk and Old Uygur documents: inscriptions, Manichean and Buddhist literary works.

230A-230B-230C. Historical and Comparative Survey of Turkic Languages. (4-4-4) Lecture, three hours. Requisite: course 180. Extinct and living Turkic languages. History of Turkic: developments in phonemic, grammatical, and lexical systems from the 8th to 20th century. Structural analysis of Turkic languages on comparative basis.

235A-235B. Middle Turkic: Karakhanid, Khorazmian, Mamluk-Kipchak, and Old Anatolian. (4-4) Lecture, three hours. Requisite: course 180. Survey of Middle Turkic documents. Textual and linguistic analysis of Middle Turkic texts from various literary genres.

240A-240B-240C. Advanced Ottoman. (4-4-4) Lecture, three hours. Requisites: courses 210A, 210B, 210C. Emphasis on different genres of Ottoman writing (belles lettres as well as various types of state documents) in elaborate high style of classical Ottoman period (15th to 19th century). Selections are read in manuscript to prepare students to read works in form in which they are likely to encounter them in their research.

250A-250B-250C. Islamic Texts in Chagatay. (4-4-4) Lecture, three hours. Requisites: courses 220A, 220B, 220C. Philological and linguistic survey of basic Islamic source material written in Chagatay literary language. Reading and discussion of Chagatay texts on Islamic topics.

280A-280B. Seminars: Modern Turkish Literature. (4-4) Seminar, two hours. Requisite: course 102B. Specific issues and trends in development of Turkish literature from middle of 19th century to the present.

290A-290B. Seminars: Classical Turkic Literature—Ottoman, Chagatay, and Azeri. (4-4) Seminar, two hours. Requisites: courses 210A, 210B, and 210C, and/or 220A, 220B, and 220C. Survey of Islamic literatures of the Turks in classical period. Readings of Ottoman, Chagatay, and Azeri texts from various literary genres. Discussion of stylistic, prosodic, and linguistic characteristics.

596. Directed Individual Study. (2 to 8) Tutorial, to be arranged. May be repeated for credit. S/U or letter grading.

597. Examination Preparation. (2 to 8) Tutorial, to be arranged. S/U grading.

599. Ph.D. Dissertation Research and Preparation. (2 to 8) Tutorial, to be arranged. S/U grading.

NEUROBIOLOGY

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Marie-Françoise Chesselet, M.D., Ph.D., *Chair*
Thomas Otis, Ph.D., *Vice Chair*
Nicholas C. Brecha, Ph.D., *Vice Chair for Education*

Professors

Dean Bok, Ph.D. (*Dolly Green Professor of Ophthalmology*)
Nicholas C. Brecha, Ph.D.
Dean V. Buonomano, Ph.D.
Marie-Françoise Chesselet, M.D., Ph.D. (*Charles H. Markham Professor of Neurology*)
Edwin L. Cooper, Ph.D.
Jean S. de Vellis, Ph.D. (*Dr. George Tarjan Professor of Mental Retardation*, in Residence)
V. Reggie Edgerton, Ph.D.
Jerome Engel, Jr., M.D., Ph.D. (*Jonathan Sinay Professor of Epilepsy*)
Jack L. Feldman, Ph.D.
Robin S. Fisher, Ph.D., in Residence
Robert G. Frank, Jr., Ph.D. (*Medical History Division*)
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Ronald M. Harper, Ph.D.
Carolyn R. Houser, Ph.D.
Paul E. Micevych, Ph.D.
Thomas S. Otis, Ph.D.
Dario L. Ringach, Ph.D.
Arnold B. Scheibel, M.D.
Felix E. Schweizer, Ph.D.
Alcino J. Silva, Ph.D.
Michael V. Sofroniew, M.D., Ph.D.
Catia Sternini, M.D., in Residence
David S. Williams, Ph.D., in Residence
Guido A. Zampighi, D.D.S., Ph.D.

Professors Emeriti

George W. Bernard, Ph.D.
John H. Campbell, Ph.D.
Carmine D. Clemente, Ph.D.
Ellen R. Dirksen, Ph.D.
Earl Eldred, M.D.
Roger A. Gorski, Ph.D.

Lawrence Kruger, Ph.D.
 John K. Lu, Ph.D.
 Ynez V. O'Neill, Ph.D.
 John D. Schlag, M.D.
 José P. Segundo, M.D.
 M.B. Sterman, Ph.D.
 Anna N. Taylor, Ph.D.
 Jaime R. Villablanca, Ph.D.
 Charles D. Woody, Ph.D.
 Richard W. Young, Ph.D.
 Emery G. Zimmermann, M.D., Ph.D.

Associate Professor

Baljit S. Khakh, Ph.D.

Assistant Professors

James W. Bisley, Ph.D.
 Lars Dreier, Ph.D.
 Bennett G. Novitch, Ph.D.
 Carlos Portera-Cailliau, M.D., Ph.D., *in Residence*
 Joshua T. Trachtenberg, Ph.D.

Adjunct Professor

Ronald Szymusiak, Ph.D.

Scope and Objectives

The Department of Neurobiology offers advanced training leading to the Ph.D. degree. Graduates can anticipate an academic career at the college or university level or as a basic science researcher at a research institute or biotechnology company. In accord with this the department strives to produce graduates soundly qualified both for teaching at the college or university level and for the conduct of original research in neurobiology.

The overall objective of the Ph.D. program is to provide a strong theoretical and practical foundation in the area of cellular and systems neurobiology, with the goal to develop a better understanding of normal and pathological brain function and behavior. The graduate program provides (1) basic and advanced instruction in the fundamentals of neuroscience, (2) advanced independent research training in the areas of cellular, structural, and systems neurobiology, and (3) teaching experience in undergraduate, graduate, and professional (dental and medical) courses in neuroscience. The program is targeted toward highly qualified and self-motivated doctoral students who take advantage of a flexible curriculum characterized by extensive informal and formal interactions with faculty in small groups and on an individual tutorial basis. The curriculum is structured to allow students extensive opportunities for critical examination of contemporary neuroscience literature and research and for the development of oral and written communication skills.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Neurobiology offers Master of Science (M.S.), Candidate in Philosophy

(C.Phil.), and Doctor of Philosophy (Ph.D.) degrees in Neurobiology.

Medical History

Upper Division Courses

107A-107B. Historical Development of Medical Sciences. (4-4) Lecture, three hours. Major contributions of medicine and medical personalities from earliest times. P/NP or letter grading. **107A.** Contributions of medicine and medical personalities from earliest times through 1650. **107B.** Subject in the period from 1650 through the 19th century. Illustrated lectures, class discussion, and required readings from selected texts.

M169. History of Neurosciences. (4) (Same as Neurobiology M169.) Lecture, one hour; discussion, two hours. Development of neurosciences, especially neuroanatomy and neurophysiology, from Enlightenment era through latter 20th century. Emphasis on fundamental nerve functions, cell communication, and technological, conceptual, and cultural influences that have shaped understanding of brain and nervous system. P/NP or letter grading.

Graduate Course

596. Directed Individual Studies in Medical History. (2 to 12) Tutorial, to be arranged. Investigation of subjects in medical history selected by students with advice and direction of instructor. Individual reports and conferences. S/U or letter grading.

Neurobiology

Lower Division Course

88. Lower Division Seminar: Special Topics in Neurobiology. (4) Seminar, three hours; outside study, nine hours. Prerequisite: satisfaction of Entry-Level Writing requirement. Variable topics seminar that examines specific issues or problems and ways that professionals in neurobiology approach study of them. Students define, prepare, and present their own research projects with guidance of professional school faculty member. Letter grading.

Upper Division Courses

106. Functional Neuroanatomy. (4) Lecture/laboratory, three two-hour sessions. Designed for dental students. Lectures, demonstrations, and laboratories dealing with structure and functional organization of nervous system. P/NP or letter grading.

M168. Ideas and Experiments in History of Physiology. (4) (Same as Physiological Science M168.) Lecture, three hours. Interaction of concepts and experimental techniques in physiology from the early 19th to latter 20th centuries, including heart and circulation, hormones, nutrition and vitamins, brain, spinal cord, and peripheral nervous system, as well as development of physiology as scientific discipline. Discussion of weekly readings and presentations by students. Letter grading.

M169. History of Neurosciences. (4) (Same as Medical History M169.) Lecture, one hour; discussion, two hours. Development of neurosciences, especially neuroanatomy and neurophysiology, from Enlightenment era through latter 20th century. Emphasis on fundamental nerve functions, cell communication, and technological, conceptual, and cultural influences that have shaped understanding of brain and nervous system. P/NP or letter grading.

197. Individual Studies in Neurobiology. (2 to 4) Tutorial, to be arranged. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned readings and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

199. Directed Research in Neurobiology. (2 to 8) Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Studies in anatomy and related subject areas appropriate for training of particular students, which includes reading assignments or laboratory work leading to final oral or written report. May be repeated for maximum of 16 units. Individual contract required. P/NP or letter grading.

Graduate Courses

M200A. Synapses, Cells, and Circuits. (4) (Same as Neuroscience M204.) Lecture, three hours; laboratory, two hours. Fundamental topics concerning subcellular, cellular, and structural organization of nervous system. Specific topic areas include neuronal ultrastructure, cellular neurobiology, neuroanatomy, neural circuitry, and imaging. Letter grading.

M200B. Cell, Developmental, and Molecular Neurobiology. (6) (Same as Molecular, Cell, and Developmental Biology M220 and Neuroscience M201.) Lecture, six hours. Fundamental topics concerning cellular, developmental, and molecular neurobiology, including intracellular signaling, cell-cell communication, neurogenesis and migration, synapse formation and elimination, programmed neuronal death, and neurotropic factors. Letter grading.

M200C. Sensory Systems Neurobiology. (4) (Same as Neuroscience M221.) Lecture, two hours; discussion, two hours. Fundamental topics in sensory systems neurobiology, including sensory transduction, taste and olfaction, audition, vision, and somatosensory system. Letter grading.

200D. Motor Systems Neurobiology. (4) Lecture, four hours. Fundamental topics in motor systems neurobiology, including muscle, motor units, and motoneuron pools, spinal motor control, reflexes, locomotion, basal ganglia, cerebellum, and eye movements. Letter grading.

200E. Regulatory, Behavioral, and Cognitive Neurobiology. (6) Lecture, two hours; discussion, two hours; laboratory, two hours. Topics include hypothalamus, cardiovascular system, breathing, food intake and metabolism, water intake and body fluids, neuroendocrine systems, circadian timing, sleep and dreaming, psychosexual development, motivation, reward and addiction, cognitive development, object, face, and spatial recognition, learning and memory, language and communication, and thinking and problem solving. Letter grading.

M200F. Cellular Neurophysiology. (4) (Same as Neuroscience M202 and Physiological Science M202.) Lecture, three hours; discussion, two hours. Prerequisites: Molecular, Cell, and Developmental Biology 171 or Physiological Science 166, and Physiological Science 111A or M180A or Physics 6B. Advanced course in cellular physiology of neurons. Action and membrane potentials, channels and channel blockers, gates, ion pumps and neuronal homeostasis, synaptic receptors, drug-receptor interactions, transmitter release, modulation by second messengers, and sensory transduction. Letter grading.

M200G. Biology of Learning and Memory. (4) (Same as Molecular, Cellular, and Integrative Physiology M200G, Neuroscience M220, and Psychology M208.) Lecture, four hours. Molecular, cellular, circuit, systems, neuroanatomy, theory, and models of learning and memory. Cross-disciplinary focus on learning and memory to provide integrative view of subject that emphasizes emerging findings that take advantage of novel groundbreaking models. Letter grading.

220. Structural Neurobiology. (2) Lecture, two hours; discussion, two hours; laboratory, two hours. Introduction to molecular structure of chemical, electrical, and mixed synapses as determined by imaging methods such as electron tomography. Comprehensive review of current principles governing synaptic transmission and balanced account of some of most topical areas of field, such as hemifusion, kiss and run, and fast exocytosis. Laboratory sessions review methods for preparing samples through in-depth analysis of imaging strategies. Computer laboratory ses-

sions allow demonstration of data processing and interpretation. Three round table discussions provide forum for further inspiration as well as tackling any questions or difficulties that may arise from laboratories and lectures. S/U grading.

M227. Neuroendocrinology of Reproduction. (4) (Same as Physiological Science M227.) Lecture, three hours; discussion, one hour. Preparation: undergraduate life sciences and chemistry courses. Structural, functional, and developmental aspects of neuroendocrine and reproductive organs, with emphases on feedback regulatory mechanisms between hypothalamic-pituitary and gonadal functions and on functional integration of neuroendocrine-reproductive axis at cellular and molecular levels. Letter grading.

M255. Seminar: Neural and Behavioral Endocrinology. (2) (Same as Physiological Science M255 and Psychology M294.) Seminar, one hour; discussion, one hour. Topics include hormonal biochemistry and pharmacology. Hypothalamic/hypophyseal interactions, both hormonal and neural. Structure and function of hypothalamus. Hormonal control of reproductive and other behaviors. Sexual differentiation of brain and behavior. Stress: hormonal, behavioral, and neural aspects. Aging of reproductive behaviors and function. Letter grading.

270. Joint Seminar: Neuroscience Lectures. (1) Seminar, one hour. Formal lectures on current research topics in neuroscience by speakers from national, international, and local neuroscience communities. S/U grading.

M287. Dynamics of Neural Microcircuits. (4) (Same as Neuroscience M287.) Lecture, two hours; discussion, two hours. Development of integrative understanding of neural microcircuits that underlie specific functions of sensory processing, generation, and coordination of motor activity, as well as generation and modulation of neural rhythms. Letter grading.

295. Culture of Neurobiology. (2) Discussion, one hour. Outside readings, classroom discussions, short write-ups, and student presentations on current issues in neurobiology. Topics include networking, mentoring, publishing, grant system, authorship, and career opportunities. S/U grading.

296. Research Seminar and Journal Club. (1) Seminar, one hour. Seminar and journal club with focus on current research topics and activities occurring within department. S/U grading.

298A-298B-298C. Advanced Topics in Neurobiology. (2-2-2) Seminar, one hour; discussion, one hour. Advanced seminar courses in neurobiology to be offered by different departmental faculty members. Topics are grouped thematically. S/U grading. **298A.** Molecular, Cellular, and Developmental Neurobiology; **298B.** Sensory and Motor Systems Neurobiology; **298C.** Regulatory, Behavioral, and Cognitive Neurobiology.

495. Preparation for Teaching in Anatomical Sciences. (2 to 4) Seminar, to be arranged. Designed for graduate students. Observation and practice of methods of teaching in anatomy, including preparation of material, participation in laboratory instruction, and presentation of review sessions, all with peer and faculty criticism. Gross anatomy, microscopic anatomy, and neuroanatomy subject fields included. May not be applied toward degree requirements. S/U grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. Directed Individual Study or Research. (2 to 12) Tutorial, to be arranged. S/U grading.

597. Preparation for M.S. Comprehensive Examination or Ph.D. Qualifying Examinations. (2 to 12) Tutorial, to be arranged. S/U grading.

598. Thesis Research for M.S. Candidates. (2 to 12) Tutorial, to be arranged. S/U grading.

599. Dissertation Research for Ph.D. Candidates. (2 to 12) Tutorial, to be arranged. S/U grading.

NEUROLOGY

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Chairs

John C. Mazziotta, M.D., Ph.D., *Chair (Frances Stark Professor of Neurology)*

Andrew Charles, M.D., *Vice Chair of Programs and Research*

Barbara Giesser, M.D., *Vice Chair of Education and Clinical Affairs*

Barbara G. Vickrey, M.D., M.P.H., *Vice Chair of Academic Affairs*

Mark Morrow, M.D., *Vice Chair, Harbor-UCLA*

Alan Shewmon, M.D., *Vice Chair, Olive View-UCLA*

Claude G. Wasterlain, M.D., *Vice Chair, VA Southern California*

Scope and Objectives

Neurology is the medical science dealing with the normal and diseased nervous system. Neurological disorders are often associated with significant disability, morbidity, and mortality. Their higher incidence in association with greater longevity of the population, increased awareness, improved diagnostic methods, and other factors place neurological disorders among the major medical problems today. The Department of Neurology and the Reed Neurological Research Center provide means for a coordinated basic science and clinical research approach to neurological disorders, patient care, and neurological education.

The department instructs medical students throughout the four years. Emphasis in the first year is on basic aspects of neuroanatomy, chemistry, and physiology; in the second year, neurological history taking and neurological examination of afflicted patients are stressed. The third year consists of a clerkship, and the fourth year provides electives in neurology, including an advanced clinical clerkship.

Graduate students and postdoctoral candidates are trained in both the basic and clinical laboratories.

For further details on the Department of Neurology and a listing of the courses offered, see <http://www.neurology.ucla.edu>.

Neurology

Upper Division Course

199. Directed Research in Neurology. (2 to 8) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of

faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

NEUROSCIENCE

Interdepartmental Undergraduate Program

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Scott H. Chandler, Ph.D., *Chair*

Faculty Administrative Committee

Scott H. Chandler, Ph.D. (*Integrative Biology and Physiology*)

Carlos V. Grijalva, Ph.D. (*Psychology*)

Patricia E. Phelps, Ph.D. (*Integrative Biology and Physiology*)

Joseph B. Watson, Ph.D., *in Residence (Psychiatry and Biobehavioral Sciences)*

Scope and Objectives

Neuroscience seeks to understand the brain in health and in disease. Topics of fundamental interest include perception, cognition, learning, memory, motor control, and regulation of body function. The undergraduate interdepartmental program seeks to explore the principles and concepts of this broad range of nervous system function at many levels of analysis, including molecular, cellular, synaptic, network, computational, and behavioral.

Undergraduate Study

The Neuroscience major is a designated capstone major. Undergraduate students have the option of conducting two terms of independent research within a faculty laboratory or completing an advanced laboratory methods course with a series of research modules. Through their capstone work, students demonstrate ability to generate testable scientific hypotheses and develop a research plan to test such hypotheses; work on research projects independently and in small groups; evaluate and discuss primary literature and the validity of hypotheses generated by others; communicate effectively orally and in writing; and demonstrate creative thinking.

Neuroscience B.S.

Capstone Major

Preparation for the Major

Life Sciences Core Curriculum

Required: Life Sciences 1, 2, 3, 4; Chemistry and Biochemistry 14A, 14B, 14BL, 14C, 14CL, and 14D, or 20A, 20B, 20L, 30A, 30AL, 30B, and 30BL; Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A; Physics 1A, 1B, 1C, 4AL,

and 4BL, or 6A, 6B, and 6C; one course from Statistics 10 or 13.

Each core curriculum course must be passed with a grade of C– or better, and all courses must be completed with an overall grade-point average of 2.0 or better. Students receiving grades below C– in two core curriculum courses, either in separate courses or repetitions of the same course, are subject to dismissal from the major.

Transfer Students

Transfer applicants to the Neuroscience major with 90 or more units must complete the following introductory courses prior to admission to UCLA: one year of general biology with laboratory for majors, preferably equivalent to Life Sciences 1 and 2, one year of calculus, one year of general chemistry with laboratory for majors, one semester of organic chemistry with laboratory, and one statistics course. A second semester of organic chemistry or one year of calculus-based physics is strongly recommended but not required for admission.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

The Neuroscience major consists of 11 courses (approximately 47 units). Consult respective departmental or program listings for course descriptions.

Required Core: Neuroscience M101A, M101B, M101C, 102, Chemistry and Biochemistry 153A, 153L. Psychology 115 cannot be substituted for Neuroscience M101A; however, Physiological Science 111A can be substituted.

Elective Options: One course from each of the following three options:

Behavioral and Cognitive Neuroscience: Neuroscience M119L, M130, C172, 178, 179, 191A, Physiological Science C144, M181, Psychology 110, 112A, 112B, M117J, 118, 119A through 119F, M119L, 119M, 119P, 119R, 119S, M119X, 120A, 120B, 124A, 124B, 124I, or 127B.

Molecular, Cell, and Developmental Neuroscience: Molecular, Cell, and Developmental Biology 162, Neuroscience M130, M145, M148, C177, 180, 181, 182, 191C, Physiological Science C126, M145, 146, 147, M148, M181, or Psychology M117J.

Systems and Integrative Neuroscience: Neuroscience M119N, M130, M145, 191B, Physiological Science C126, 138, C144, M145, 146, 147, 173, 177, M181, Psychology 112B, M117J, 119A, 119B, 119M, M119N, 119P, 119Q, 119S, or 120B.

Capstone Research Options: (1) Neuroscience 101L or (2) Neuroscience 198A and 198B, or 199A and 199B. Students who select the Neuroscience 101L capstone research option must take four upper division electives, with at least one from each of the three elective options. Students who select the Neuroscience 198A and 198B, or 199A and 199B option must take

three upper division electives, one from each elective option.

No more than eight courses may be from any one department. A maximum of 8 units of Neuroscience 198 or 199 in any combination may be applied toward the major. Each course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better in all upper division courses taken for the major.

Honors Program

The honors program provides exceptional Neuroscience majors with the opportunity to do research culminating in an honors thesis. Majors who have completed all preparation courses with a grade-point average of 3.0 or better and an overall GPA of 3.2 or better may apply for admission to the honors program. Applications and program requirements are available in the Neuroscience Undergraduate Office and at <http://www.neurosci.ucla.edu>. Students must submit the application before beginning their upper division honors requirements. After completion of all requirements and with the recommendation of the faculty sponsor and a second reader of the thesis, the chair confers honors at graduation.

Neuroscience Minor

The Neuroscience minor is designed to allow students in other majors an opportunity to explore the interdisciplinary field of neuroscience in a structured and rigorous way, while pursuing a major field of study in another discipline at the same time.

To enter the minor, students must have an overall grade-point average of 2.0 or better and a 2.5 GPA in the requisite courses for Neuroscience M101A and M101B.

Non-science majors wishing to minor in Neuroscience should be aware that preparation courses in chemistry, life sciences, and physics are requisites to the upper division course requirements.

Required Upper Division Courses (approximately 31 units): Neuroscience M101A, M101B, M101C (5 units each) and four elective courses selected from 101L, 102, 199A and 199B, and from any of the three elective options listed under the Neuroscience major.

No more than two courses may be applied toward both this minor and a major or minor in another department or program. Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Neuroscience

See the Neuroscience Interdepartmental Graduate Program for the graduate course offerings.

Lower Division Course

10. Brain Made Simple: Neuroscience for the 21st Century. (4) Lecture, four hours. Preparation: high school background in either biology or chemistry. Not open for credit to students with credit for course M101A. General overview and introduction to most exciting and fundamental topics encompassing field of neuroscience. P/NP or letter grading.

Upper Division Courses

M101A-M101B-M101C. Neuroscience: From Molecules to Mind. (5-5-5) (Same as Molecular, Cell, and Developmental Biology M175A-M175B-M175C, Physiological Science M180A-M180B-M180C, and Psychology M117A-M117B-M117C.) Lecture, four hours; discussion, 90 minutes. P/NP or letter grading:

M101A. Cellular and Systems Neuroscience. (5) Lecture, four hours; discussion, 90 minutes. Requisites: Chemistry 14C or 30A (14C may be taken concurrently), Life Sciences 2, Physics 1B or 1BH or 6B or 6BH. Not open for credit to students with credit for Physiological Science 111A. For Physiological Science majors only, a grade of C– or better is required to proceed to Physiological Science 111B. Cellular neurophysiology, membrane potential, action potentials, and synaptic transmission. Sensory systems and motor system; how assemblies of neurons process complex information and control movement. P/NP or letter grading.

M101B. Molecular and Developmental Neuroscience. (5) Lecture, four hours; discussion, 90 minutes. Requisites: course M101A (or Molecular, Cell, and Developmental Biology M175A or Physiological Science M180A or Psychology M117A) or Physiological Science 111A or Psychology 115, Life Sciences 3, 4. Molecular biology of channels and receptors: focus on voltage dependent channels and neurotransmitter receptors. Molecular biology of supramolecular mechanisms: synaptic transmission, axonal transport, cytoskeleton, and muscle. Classical experiments and modern molecular approaches in developmental neurobiology. P/NP or letter grading.

M101C. Behavioral and Cognitive Neuroscience. (5) Lecture, four hours; discussion, 90 minutes. Requisite: course M101A (or Molecular, Cell, and Developmental Biology M175A or Physiological Science M180A or Psychology M117A) or Physiological Science 111A or Psychology 115. Neural mechanisms underlying motivation, learning, and cognition. P/NP or letter grading.

101L. Neuroscience Laboratory. (4) Lecture, two hours; laboratory, three hours. Requisites: courses M101A, M101B (M101B may be taken concurrently). Not open for credit to students with credit for Psychology 116. Introduction to laboratory methods in neuroscience. Laboratory exercises range from molecular and cell biological to behavioral. Hands-on experience with important methodology and experimental approaches in neuroscience.

102. Introduction to Functional Anatomy of Central Nervous System. (4) Lecture, three hours; laboratory, one hour. Enforced prerequisite: Life Sciences 2. Enforced corequisite: course M101A. Not open to freshmen. Overview of human nervous system; relation of behavior to higher cognitive function. Development of primate and human brain during past few million years; evolutionary aspects of neuroanatomical structures and effects of behavior and cultural attitudes of modern man. P/NP or letter grading.

M119L. Human Neuropsychology. (4) (Same as Psychology M119L.) Lecture, three hours. Recommended requisites: courses M101A and M101C (or Psychology 115), Psychology 120A or 120B. Designed for juniors/seniors. Survey of experimental and clinical human neuropsychology; neural basis of higher cognitive functions. P/NP or letter grading.

M119N. Visual System. (4) (Same as Psychology M119N.) Lecture, three hours. Requisite: course M101A or Physiological Science 111A or Psychology 115. Ability to image and analyze visual world is truly remarkable feat. Coverage of anatomy and physiolo-

gy of visual processing from retina to visual cortex through lectures, extensive reading, and discussions. P/NP or letter grading.

M130. Biological Bases of Psychiatric Disorders. (4) (Same as Molecular, Cell, and Developmental Biology M181, Physiological Science M181, Psychiatry M181, and Psychology M117J.) Lecture, three hours. Requisite: course M101A (or Molecular, Cell, and Developmental Biology M175A or Physiological Science M180A or Psychology M117A) or Physiological Science 111A or Psychology 115. Underlying brain systems involved in psychiatric symptoms and neurological disorders, including schizophrenia, depression, bipolar disorder, obsessive/compulsive disorder. Provides basic understanding of brain dysfunctions that contribute to disorders and rationales for pharmacological treatments. P/NP or letter grading.

M145. Neural Mechanisms Controlling Movement. (5) (Same as Physiological Science M145.) Lecture, four hours. Requisite: course M101A or Physiological Science 111A or M180A. Examination of central nervous system organization required for production of complex movements such as locomotion, mastication, and swallowing. Letter grading.

M148. Neuronal Signaling in Brain. (4) (Same as Physiological Science M148.) Lecture, three hours; discussion one hour. Requisites: courses M101A (or Physiological Science 111A or M180A), M101B (or Physiological Science M180B or Chemistry 153A). Consideration of brain function, with focus on cellular physiology and functional neuroanatomy. Topics include neuronal excitability and synaptic transmission and function of specific neuronal circuits in auditory pathway, basal ganglia, cerebellum, hippocampus, and neocortex. Letter grading.

C172. Neuroimaging and Brain Mapping. (4) Lecture, three hours. Requisite: course M101A (or Molecular, Cell, and Developmental Biology M175A or Physiological Science M180A or Psychology M117A) or Molecular, Cell, and Developmental Biology 171 or Physiological Science 111A or Psychology 115. Strongly recommended: course 102. Theory, methods, applications, assumptions, and limitations of neuroimaging. Techniques, biological questions, and results. Brain structure, brain function, and their relationship discussed with regard to imaging. Concurrently scheduled with course CM272. Letter grading.

C177. Drugs of Abuse from Neurobiology to Policy and Education. (4) Lecture, four hours. Enforced requisite: course M101A. Course ranges from synapse to society. Provides intensive didactic on current neuroscientific basis for understanding substance abuse and blends that material with relevant topics such as epidemiology, co-occurring disorders, treatment options, prevention, and public policies, with emphasis on communication of course materials to general public. Concurrently scheduled with course CM277. Letter grading.

178. Human Electroencephalography and Evoked Potentials in Research and Clinical Diagnosis. (4) Seminar, four hours. Enforced requisite: course M101A. Not open for credit to students with credit for course 191A, seminar 1. Emphasis on human electroencephalogram (EEG) and various forms of sensory-evoked potentials. Introduction to number of experimental paradigms that allow for recording of different brain signals from brainstem to cortex. Letter grading.

179. Clinical Neuroscience: New Concepts in Neurological Disorders. (4) Lecture, four hours. Enforced requisite: course M101A. Not open for credit to students with credit for course 191A, seminar 2. Introduction to neurological diseases. Description of diseases from clinical perspective, description of disorder, dealing with clinical population, and discussion of treatments and underlying causes. Mechanisms and new treatments. Letter grading.

180. Genetic, Molecular, and Genomic Approaches to Neural Development and Disease. (4) Seminar, three hours. Enforced requisites: courses M101A, M101B. Not open for credit to students with credit for course 191C, seminar 1. In-depth study of genetic, molecular, and genomic approaches to studying nervous system development and disease. Overview of

current technologies used to generate mouse models for genetic and phenotypic analysis. Review of techniques for studying development and disease. Integrative genomic approaches for identifying and characterizing gene(s) involved in these processes. Emphasis on mouse models, but other model organisms considered as well. Letter grading.

181. Cellular and Molecular Mechanisms of Learning and Memory. (4) Seminar, four hours. Enforced requisite: course M101A. Not open for credit to students with credit for course 191C, seminar 2. Cellular models of learning and memory. Genetic and molecular approaches to learning and memory. Learning and memory deficits in neuropsychiatric diseases. LTP and LTD models. Letter grading.

182. Pharmacology of Drugs of Abuse. (4) Seminar, four hours. Enforced requisite: course M101A. Not open for credit to students with credit for course 191A, seminar 3. Pharmacology of stimulants, depressants, hallucinogens, and opioids. Discussion of how drugs interact with central nervous system and produce dependence, addiction, and chronic toxic affects. Letter grading.

191A-191B-191C. Variable Topics Research Seminars: Neuroscience. (4-4-4) Seminar, three hours. Topics on one or more aspects of neuroscience. Reading, discussion, and development of culminating project. May be applied as elective only in specific area of group 2. Each course may be repeated once for credit. P/NP or letter grading. **191A.** Behavioral and Cognitive Neuroscience. Requisite: course M101A or Physiological Science 111A. **191B.** Systems and Integrative Neuroscience. Requisite: course M101A or Physiological Science 111A. **191C.** Molecular, Cell, and Developmental Neuroscience. Enforced requisite: course M101B.

191H. Honors Seminars: Neuroscience. (4) Seminar, four hours. Preparation: one statistics course (Statistics 10 or equivalent). Limited to neuroscience honors program students. Instruction in principles of scientific method, ethics, and written and oral communication; critique of current journal articles and research projects. Presentation of individual research. May not be applied toward elective requirements for major. Must be taken during Winter Quarter of academic year that students enroll in courses 198A and 198B. Letter grading.

192. Practicum in Neuroanatomy for Undergraduate Assistants. (2) Seminar, three hours; laboratory, one hour. Requisites: courses M101A and 102, with grades of A. Limited to senior Neuroscience majors. Training and supervised practicum in neuroanatomy for undergraduate assistants. Students assist faculty members and graduate teaching assistants in laboratory only. May not be applied toward elective requirements and may not be repeated for credit. P/NP or letter grading.

192B. Project Brainstorm: Neuroscience K-12 Outreach. (4) (Formerly numbered 195.) Seminar, one hour; fieldwork, three hours. Limited to juniors/seniors. Course to be supervised by faculty and teaching assistant advisers. Project Brainstorm is K-12 science education outreach program of Brain Research Institute (BRI) and Neuroscience Ph.D. and undergraduate programs that stimulates interest in science for children and young adults in grades K-12 by providing hands-on learning experiences that emphasize function and importance of brain. Students expected to prepare age-appropriate lesson plans to be used in Project Brainstorm classroom visits. Students meet on regular basis with supervisors and provide periodic reports of their experience. May not be applied toward major requirements. May be repeated twice for credit. P/NP grading.

193. Journal Club Seminars: Current Research in Brain Development and Regeneration. (1) Seminar, one hour. Requisite: course M101B. Limited to undergraduate students. Review and discussion of recent research papers that make potential breakthroughs in understanding of brain development and regeneration. May be repeated for credit. P/NP grading.

198A. Honors Research in Neuroscience. (4) Tutorial, 12 hours minimum. Requisites: courses 99, M101A. Limited to neuroscience honors program students. Directed independent research involving extensive reading and development of honors thesis or comprehensive project under direct supervision of faculty member. For departmental honors, students must also take course 191H. Maximum of 8 units of courses 198A, 198B, 199 may be applied toward major. Individual contract required. In Progress grading (credit to be given only on completion of course 198B).

198B. Honors Research in Neuroscience. (4) Tutorial, 12 hours minimum in laboratory. Requisite: course 198A. Continued reading and research that culminate in honors thesis under direct supervision of faculty member. For departmental honors, students must also take course 191H. Maximum of 8 units of courses 198A, 198B, 199 may be applied toward major. Individual contract required. Letter grading.

199A. Directed Research in Neuroscience. (4) (Formerly numbered 199.) Tutorial, 12 hours minimum. Enforced requisites: courses 99, M101A. Limited to junior/senior Neuroscience majors and minors with grades of B (3.0) or better. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. Maximum of 8 units of courses 198A, 198B, 199A, 199B may be applied toward major. Individual contract required. In Progress grading (credit to be given only on completion of course 199B).

199B. Directed Research in Neuroscience. (4) Tutorial, 12 hours minimum. Enforced requisite: course 199A. Limited to junior/senior Neuroscience majors and minors with grades of B (3.0) or better. Continued supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. Maximum of 8 units of courses 198A, 198B, 199A, 199B may be applied toward major. Individual contract required. Letter grading.

199C. Continued Directed Research in Neuroscience. (4) Tutorial, 12 hours minimum in laboratory. Enforced requisite: course 198B or 199B. Limited to junior/senior Neuroscience majors and minors with grades of B (3.0) or better. Continued reading and research that culminate in report under direct supervision of faculty mentor. May not be applied toward major. May be repeated for credit. Individual contract required. Letter grading.

NEUROSCIENCE

*Interdepartmental Graduate Program
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Michael S. Levine, Ph.D., *Chair*

Faculty Administrative Committee

Dean V. Buonomano, Ph.D. (*Neurobiology, Psychology*)
S. Thomas Carmichael, Jr., M.D., Ph.D. (*Neurology*)
Ellen M. Carpenter, Ph.D., *in Residence* (*Psychiatry and Biobehavioral Sciences*)
Marie-Françoise Chesselet, M.D., Ph.D. (*Neurobiology, Neurology*)
Christopher J. Evans, Ph.D., *in Residence* (*Psychiatry and Biobehavioral Sciences*)
David L. Glangzman, Ph.D. (*Integrative Biology and Physiology, Neurobiology*)
Karen H. Gylys, R.N., Ph.D. (*Nursing*)
Volker Hartenstein, Ph.D. (*Molecular, Cell, and Developmental Biology*)

Franklin B. Krasne, Ph.D. (*Psychology*)
 Michael S. Levine, Ph.D., in *Residence (Psychiatry and Biobehavioral Sciences)*
 Kelsey C. Martin, M.D., Ph.D. (*Biological Chemistry, Psychiatry and Biobehavioral Sciences*)
 Richard W. Olsen, Ph.D. (*Molecular and Medical Pharmacology*)
 Diane M. Papazian, Ph.D. (*Physiology*)
 Elizabeth R. Sowell, Ph.D. (*Neurology*)
 Eric J.N. Vilain, M.D., Ph.D. (*Human Genetics*)

Scope and Objectives

The interdepartmental Neuroscience Ph.D. Program prepares students for careers in neuroscience research and education. The hallmark of the program is an integrated approach to study of the nervous system, using the multi-level analytical tools of molecular, cellular, systems, and/or behavioral biology, as well as quantitative approaches from the fields of mathematics, physics, and engineering. Students working at one or two analytical levels nevertheless learn to appreciate the methods and advantages of other levels of analysis. Emphasis is both on mechanisms of neural function and the biological basis of disease. Students select their research mentor from the list of all neuroscience faculty at UCLA.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degree

The Neuroscience Program offers the Doctor of Philosophy (Ph.D.) degree in Neuroscience.

Neuroscience

Graduate Courses

M201. Cell, Developmental, and Molecular Neurobiology. (6) (Same as Molecular, Cell, and Developmental Biology M220 and Neurobiology M200B.) Lecture, six hours. Fundamental topics concerning cellular, developmental, and molecular neurobiology, including intracellular signaling, cell-cell communication, neurogenesis and migration, synapse formation and elimination, programmed neuronal death, and neurotropic factors. Letter grading.

M202. Cellular Neurophysiology. (4) (Same as Neurobiology M200F and Physiological Science M202.) Lecture, three hours; discussion, two hours. Requisites: Molecular, Cell, and Developmental Biology 171 or Physiological Science 166, and Physiological Science 111A or M180A or Physics 6B. Advanced course in cellular physiology of neurons. Action and membrane potentials, channels and channel blockers, gates, ion pumps and neuronal homeostasis, synaptic receptors, drug-receptor interactions, transmitter release, modulation by second messengers, and sensory transduction. Letter grading.

M203. Neuroanatomy: Structure and Function of Nervous System. (4) (Same as Biomedical Engineering M263.) Lecture, three hours; discussion/laboratory, three hours. Anatomy of central and peripheral nervous system at cellular histological and regional systems level, with emphasis on contemporary experimental approaches to morphological study of nervous system in discussions of circuitry and neuro-

chemical anatomy of major brain regions. Consideration of representative vertebrate and invertebrate nervous systems. Letter grading.

M204. Synapses, Cells, and Circuits. (4) (Same as Neurobiology M200A.) Lecture, three hours; laboratory, two hours. Fundamental topics concerning subcellular, cellular, and structural organization of nervous system. Specific topic areas include neuronal ultrastructure, cellular neurobiology, neuroanatomy, neural circuitry, and imaging. Letter grading.

205. Systems Neuroscience. (4) Lecture/discussion, four hours. Introduction to fundamentals of systems neuroscience, with emphasis on integration of molecular mechanisms, cellular processes, anatomical circuits, and behavioral analysis to understand function of neural systems. Letter grading.

M206. Neuroengineering. (4) (Same as Biomedical Engineering M260 and Electrical Engineering M255.) Lecture, four hours; laboratory, three hours; outside study, five hours. Requisites: Mathematics 32A, Physics 1B or 6B. Introduction to principles and technologies of bioelectricity and neural signal recording, processing, and stimulation. Topics include bioelectricity, electrophysiology (action potentials, local field potentials, EEG, ECG), intracellular and extracellular recording, microelectrode technology, neural signal processing (neural signal frequency bands, filtering, spike detection, spike sorting, stimulation artifact removal), brain-computer interfaces, deep-brain stimulation, and prosthetics. Letter grading.

207. Integrity of Scientific Investigation: Education, Research, and Career Implications. (2) Discussion, two hours. Designed for graduate students. Debate on topics related to ethical conduct of scientific investigation, with emphasis on critical thinking. Topics include scientific misconduct, mentoring, data ownership, authorship, peer review, use of animals and humans in biomedical research, conflicts of interest, technology, and scientific integrity. S/U grading.

210A-210B-210C. Introduction to Current Literature in Neuroscience. (2-2-2) Discussion, two hours. Critical discussion of current research literature related to topics of the five core courses in neuroscience graduate curriculum. S/U grading.

211A-211B-211C. Evaluation of Research Literature in Neuroscience. (2-2-2) Discussion, two hours. Advanced critical analysis of current research in neuroscience. S/U grading.

M212A-M212B-M212C. Evaluation of Research Literature in Neuroengineering. (2-2-2) (Same as Biomedical Engineering M261A-M261B-M261C and Electrical Engineering M256A-M256B-M256C.) Discussion, two hours. Critical discussion and analysis of current literature related to neuroengineering research. S/U grading.

215. Variable Topics Research Literature Seminars: Neuroscience. (1) Seminar, two hours. Critical discussion and analysis of current literature for various neuroscience research topics. Only one topic may be taken twice for credit and applied toward neuroscience graduate requirements. S/U grading.

M220. Biology of Learning and Memory. (4) (Same as Molecular, Cellular, and Integrative Physiology M200G, Neurobiology M200G, and Psychology M208.) Lecture, four hours. Molecular, cellular, circuit, systems, neuroanatomy, theory, and models of learning and memory. Cross-disciplinary focus on learning and memory to provide integrative view of subject that emphasizes emerging findings that take advantage of novel groundbreaking models. Letter grading.

M221. Sensory Systems Neurobiology. (4) (Same as Neurobiology M200C.) Lecture, two hours; discussion, two hours. Fundamental topics in sensory systems neurobiology, including sensory transduction, taste and olfaction, audition, vision, and somatosensory system. Letter grading.

M230. Molecular and Cellular Mechanisms of Neural Integration. (5) (Same as Physiological Science M210 and Physiology M210.) Lecture, four hours; discussion, one hour. Requisite: course M202. Introduction to mechanisms of synaptic processing. Selected problems of current interest, including regulation and

modulation of transmitter release, molecular biology and physiology of receptors, cellular basis of integration in sensory perception and learning, neural nets and oscillators, and molecular events in development and sexual differentiation. Letter grading.

M233. Mechanisms and Relief of Pain. (2) (Same as Oral Biology M204.) Lecture, two hours. Advanced treatment of neuroanatomical, neurophysiological, and biochemical bases of pain perception. Topics include classical pain theories, pain receptors and pathways, endogenous mechanisms of pain modulation, and pharmacological basis for treatment of pain disorders. Letter grading.

240. Phenotypic Measurement of Complex Traits. (4) Lecture, three hours. Preparation: background in human genetics helpful. Integrative approach to understanding gene to behavior pathways by examination of levels of phenotype expression across systems (cell, brain, organism), across species (invertebrate, fly, mouse, human), and throughout development across varying environmental milieus. Using examples from human disorders such as schizophrenia and Alzheimer's disease, linking of these diverse approaches in genetic research to map out integrative system of understanding basis of complex human behavior. Emphasis on basic understanding of methods used at each level of phenotype analysis, along with major resources that can be accessed to gain insight to gene-behavioral links. S/U or letter grading.

255. Functional Organization of Behavior. (2) Lecture, two hours. Changes in neuronal properties supporting changes in learned behavior. Different types of learning. Role of neurotransmitters and second messengers in changing ion channels of neurons to support associative learning versus long-term potentiation of neurotransmission. S/U or letter grading.

M267. Advanced Magnetic Resonance Imaging. (4) (Same as Biomedical Physics M266 and Psychiatry M266.) Lecture, four hours. Starting with basic principles, presentation of physical basis of magnetic resonance imaging (MRI), with emphasis on developing advanced applications in biomedical imaging, including both structural and functional studies. Instruction more intuitive than mathematical. Letter grading.

CM272. Neuroimaging and Brain Mapping. (4) (Same as Physiological Science M272 and Psychology M213.) Lecture, three hours. Requisites: courses M201, M202. Theory, methods, applications, assumptions, and limitations of neuroimaging. Techniques, biological questions, and results. Brain structure, brain function, and their relationship discussed with regard to imaging. Concurrently scheduled with course C172. Letter grading.

M273. Neural Basis of Memory. (4) (Same as Psychiatry M270.) Lecture, two hours; discussion, one hour. Anatomical, physiological, and neurological data integrated into models for how behavioral phenomena of memory arise. Discussion of invertebrate memory, cortical conditioning, hippocampus and declarative memory, and frontal lobes and primary memory.

275. Advanced Techniques in Neurobiology. (2) Lecture, one hour; laboratory, one hour. Preparation: basic biology and chemistry. Designed to provide introduction and, when possible, practical demonstration of a number of techniques used in neurochemical research, with emphasis on techniques used for identification, measurement, and visualization of compounds thought to be important as mediators of intercellular communication in central nervous system. S/U or letter grading.

CM277. Drugs of Abuse from Neurobiology to Policy and Education. (4) (Formerly numbered C277.) (Same as Community Health Sciences M280.) Lecture, four hours. Enforced requisite: course M101A. Course ranges from synapse to society. Provides intensive didactic on current neuroscientific basis for understanding substance abuse and blends that material with relevant topics such as epidemiology, co-occurring disorders, treatment options, prevention, and public policies, with emphasis on communication of course materials to general public. Concurrently scheduled with course C177. Letter grading.

M285. Functional Neuroimaging: Techniques and Applications. (3) (Same as Biomedical Engineering M284, Biomedical Physics M285, Psychiatry M285, and Psychology M278.) Lecture, three hours. In-depth examination of activation imaging, including MRI and electrophysiological methods, data acquisition and analysis, experimental design, and results obtained thus far in human systems. Strong focus on understanding technologies, how to design activation imaging paradigms, and how to interpret results. Laboratory visits and design and implementation of functional MRI experiment. S/U or letter grading.

M287. Dynamics of Neural Microcircuits. (4) (Same as Neurobiology M287.) Lecture, two hours; discussion, two hours. Development of integrative understanding of neural microcircuits that underlie specific functions of sensory processing, generation, and coordination of motor activity, as well as generation and modulation of neural rhythms. Letter grading.

M293. Culture, Brain, and Development Forum. (1) (Same as Anthropology M293, Applied Linguistics M232, Education M285, and Psychology M248.) Seminar, 90 minutes every other week. Interdisciplinary seminar series to provide students with exposure to current research in understanding complex relationship between culture, brain, and development. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

596. Directed Individual Study or Research. (2 to 12) Tutorial, to be arranged. S/U grading.

597. Preparation for Ph.D. Qualifying Examinations. (2 to 12) Tutorial, to be arranged. S/U grading.

599. Dissertation Research for Ph.D. Candidates. (2 to 12) Tutorial, to be arranged. Designed for students requiring special instruction or time to work on dissertation. S/U grading.

NEUROSURGERY

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Chair

Neil A. Martin, M.D. (*W. Eugene Stern Professor of Neurosurgery*)

Scope and Objectives

Neurosurgery is a discipline of medicine that provides (1) operative and nonoperative management (i.e., critical care, prevention, diagnosis, evaluation, treatment, and rehabilitation) of disorders of the central, peripheral, and autonomic nervous systems, including their supporting structures and vascular supply, (2) the evaluation and treatment of pathological processes that modify the function or activity of the nervous system, including the hypophysics, and (3) the operative and nonoperative management of pain.

As such, neurosurgery encompasses treatment of adult and pediatric patients with disorders of the nervous system—disorders of the

brain, meninges, and skull and their blood supply, including the extracranial carotid and vertebral arteries, disorders of the pituitary gland, disorders of the spinal cord, meninges, and vertebral column, including those that may require treatment by spinal fusion or instrumentation, and disorders of the cranial and spinal nerves throughout their distribution.

For further details on the Department of Neurosurgery, see <http://neurosurgery.ucla.edu>.

Neurosurgery

Upper Division Course

199. Directed Research in Neurosurgery. (2 to 8) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

NURSING

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Dean

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Acting Associate Dean for Academic Affairs
Adeline M. Nyamathi, A.N.P., Ph.D., F.A.A.N.,
Associate Dean for International Research and Scholarly Activities, Acting Associate Dean for Research

Brian Ng, M.B.A., *Associate Dean for Administration*

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Assistant Dean for Student Affairs

Professors

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Felicia S. Hodge, Dr.P.H.
Deborah Koniak-Griffin, R.N., Ed.D., W.H.C.N.P.,
F.A.A.N. (*Audrienne H. Moseley Professor of Community Health Research*)

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Courtney H. Lyder, N.D., G.N.P., F.A.A.N.
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Mary A. Woo, R.N., D.N.Sc., F.A.A.N.

Professors Emeriti

Nancy L.R. Anderson, R.N., Ph.D., N.P.-C., A.O.C.N.,
F.A.A.N.
Lina K. Badr, R.N., D.N.Sc., P.N.P.-C., F.A.A.N.
Betty L. Chang, R.N., D.N.Sc., F.N.P.-C., F.A.A.N.
Barbara A. Davis, R.N., Ed.D.
Jacquelyn H. Flakerud, R.N., Ph.D., F.A.A.N.
Donna K. McNeese-Smith, R.N., Ed.D., C.N.A.
Sharon J. Reeder, R.N., Ph.D., F.A.A.N.
Maria W. Seraydarian, Ph.D.

Gwen M. Van Servellen, R.N., Ph.D., F.A.A.N.
Donna F. Ver Steeg, R.N., Ph.D., F.A.A.N.
Donna L. Vredevoe, Ph.D.
Frances M. Wiley, R.N., M.N.

Associate Professors

Barbara M. Bates-Jensen, R.N., Ph.D.
Lorraine S. Evangelista, R.N., Ph.D.
Karen H. Gylys, R.N., Ph.D.
MarySue V. Heilemann, R.N., Ph.D.
Janet C. Mentes, R.N., Ph.D., G.N.P.
Wendie A. Robbins, R.N., Ph.D., N.P., F.A.A.N.
(*Audrienne H. Moseley Professor of Biological Nursing Science*)
Dorothy J. Wiley, R.N., Ph.D.

Assistant Professors

Dong Sung An, M.D., Ph.D.
Jo-Ann O. Eastwood, R.N., Ph.D., C.C.N.S., C.C.R.N.
Leah FitzGerald, R.N., Ph.D., C-F.N.P.
Angela L. Hudson, R.N., Ph.D., F.N.P.-C.
Eufemia Jacob, R.N., Ph.D.
Lorna D. Kendrick, R.N., Ph.D., A.P.R.N.-B.C.
Linda Searle Leach, R.N., Ph.D., C.N.A.A.
Paul M. Macey, Ph.D., *in Residence*
Sally L. Maliski, R.N., Ph.D.
Aurelia M. O'Connell, R.N., Ph.D., A.C.N.P., B.C.,
C.C.R.N.
Carol L. Pavlish, R.N., Ph.D., O.N.C., F.A.A.N.
Nancy A. Pike, R.N., Ph.D., F.N.P.-C., C.P.N.P.-A.C.
Sophie Sokolow, Ph.D., M.Pharm.
D. Lynn Woods, R.N., Ph.D., G.N.P., F.A.A.N.
Kynna N. Wright, R.N., Ph.D., M.P.H., C-P.N.P.

Lecturers

Jody L. Adams-Renteria, R.N., M.N., F.N.P.
Lucy Artinian, R.N., M.N., F.N.P.
John R. Barnes, R.N., M.S.N.
Melinda D. Beswick, R.N., M.S.N.
Nancy Jo Bush, R.N., M.N., M.A., A.O.C.N.
Mary M. Canobbio, R.N., M.N., F.A.A.N.
Paula F. Christianson-Silva, R.N., M.S.N.
Barbara Denman, R.N., M.S.N.
Patricia L. Duncan, R.N., M.S.N., W.H.C.N.P.-B.C.
C. Susan Escoto-Lloyd, R.N., Ph.D.
Jan M. Fredrickson, R.N., M.N., C-P.N.P.
Catherine M. Gabster, R.N., M.S.N.
Lorraine Garcia-Teague, R.N., Ph.D., N.P.
Kellie T. Kell, R.N., M.S.N., F.N.P.-C.
Helen Kiger, R.N., M.S.N., C.N.S.
Laurie A. Love-Bibbero, R.N., M.S.N., F.N.P.
Young Kee Markham, R.N., M.N., G.N.P.-C.
Nancy E. McGrath, R.N., M.N., C.P.N.P.
Irma S. Nava, R.N., M.S.N.
Deborah A. Rice, R.N., M.N., F.N.P.-C.
Joan Schleper, R.N., M.S.N., G.N.P.
Avni A. Sheth, Pharm.D.
Priscilla A. Taylor, R.N., M.N., C.C.T.N., A.R.N.P.-FP
Jane T. Tokunow, R.N., M.S.N., A.C.N.M.
Kim Tran, R.N., Ph.D., G.N.P.
Inese L. Verzemnieks, R.N., Ph.D.
Heather M. Walsh, R.N., M.S.N.
Susan Woodland, R.N., M.S.N., N.P.-C.

Adjunct Professors

Mary Lynn Brecht, Ph.D.
Mary P. Cadogan, R.N., Dr.P.H., G.N.P.
Anna F. Gawlinski, R.N., D.N.Sc., C.S., A.C.N.P.,
C.C.R.N., F.A.A.N.
Eric J. McLaughlin, Ph.D.

Adjunct Associate Professors

Harriet Aronow, Ph.D.
Catherine L. Carpenter, Ph.D.
Charles Griffis, R.N., Ph.D.
Joan E. Hahn, R.N., D.N.Sc., C.D.D.N., C.S.
Colleen K. Keenan, R.N.C., Ph.D., W.H.C.N.P.

Adjunct Assistant Professors

Teresita E. Corvera-Tindel, R.N., Ph.D.
Elizabeth Dixon, R.N., Ph.D., M.P.H., P.H.N.
J. Kelly Graves, R.N., Ph.D.
Mary M. Marfisee, M.D.
Huibrice C. Pieters, R.N., Ph.D.
Maria E. Ruiz, R.N., Ph.D.
Karabi Sinha, Ph.D.

Scope and Objectives

A strong scientific basis underlies the teaching of nursing practice, leadership, and research. Related clinical experiences are arranged within the Reagan UCLA Medical Center, its affiliates, other major medical centers, or in selected community sites.

At the bachelor's level, nurses are prepared as generalists with special skills in primary, secondary, and tertiary prevention and care within a population-based context, leadership, and evidence-based practice. A program designed for associate degree or diploma nurses provides an opportunity to learn about community-based nursing care while providing a foundation for entering the advanced practice nurse master's degree program. At the master's level, nurses are prepared as generalists in hospital-based care or for advanced nursing practice as nurse practitioners, clinical specialists, or administrators in a variety of settings and specialized areas of healthcare. The Ph.D. program prepares scholars who do original research, generate new theories, and build the scientific basis for professional nursing practice. Research is both basic and applied.

Undergraduate Study

The Nursing (Generic/Prelicensure) major is a designated capstone major. Students complete a clinically based scholarly project that is approved by a designated faculty member. In completing the capstone course, students should select, evaluate, and apply appropriate theory and research findings concerning individual- and population-based health promotion and disease prevention, biobehavioral and health systems, and social environmental, cultural, and human diversity to the nursing process. They should utilize the nursing process to promote biopsychosocial health and disease prevention and to support the resources of culturally diverse clients and families in community- and/or hospital-based settings.

Through their work, students should demonstrate effective communication and collaboration skills with clients and their families, research participants, other health professionals, colleagues, and policymakers. They also should identify practice-based problems and hypotheses and critique research on issues of importance to nursing and healthcare delivery; participate effectively in relevant professional and community organizations and/or interest groups; demonstrate leadership as a member of the health team to plan, manage, and evaluate care of individuals, families, and communities for culturally diverse populations; and practice their work based on the principles of ethics, social justice, and law.

Two undergraduate programs are offered: Nursing B.S. (Generic/Prelicensure) for non-nurses and Nursing B.S. (R.N. to B.S./Postlicensure) for registered nurses.

Nursing B.S. Generic/Prelicensure

Capstone Major

The focus of the generic/prelicensure program is on the preparation of nurse generalists with special skills in primary, secondary, and tertiary prevention and care within an individual- and population-based context while developing the basics for a strong leadership role. Students learn the art and science of nursing using the latest research findings to guide their practice.

Admission

The School of Nursing strives to attract a culturally and ethnically diverse student population. Admission is designed for freshman students and transfer students at the junior level. Freshman applicants are expected to fulfill the University of California admission requirements. Transfer applicants are expected to fulfill the Intersegmental General Education Transfer Curriculum (IGETC). Students must have a grade of C or better in each requisite course and an overall grade-point average of 3.5 or better.

Two recommendation forms and a written statement of purpose are also required. Diverse life experiences, including previous employment, volunteer work, and community service that reflect leadership, responsibility, multi-cultural involvement, multilingual abilities, and other unusual skills and knowledge are evaluated for all applicants. Consideration is also given to students who are socially, economically, and educationally disadvantaged. Completed applications should reflect clearly identified career goals and documentation of potential for nursing practice.

Preparation for the Major

Required: Chemistry and Biochemistry 14A, 14B, 14C, Communication Studies 1 or 10, Life Sciences 2, 3, Microbiology, Immunology, and Molecular Genetics 10, Nursing 10, 20, 50, 54A, 54B, Physiological Science 3, 13, Psychology 10.

Transfer Students

Transfer applicants to the Nursing major with 90 or more units must complete the following introductory courses prior to admission to UCLA: communications, human anatomy, human physiology, inorganic and organic chemistry, cells, tissues, and organs, molecular biology, and psychology.

The Major

Required: Biostatistics 100A, Nursing 115, 150A, 150B, 152W, C155, C160, 161, 162A, 162B, 163, 164, 165A, 165B, 166, 167, 168, 171C, 171D, 173, 174, and completion of a capstone senior scholarly project (course 169). Transfer students must complete Nursing 10, 20, 50, 54A, and 54B on entry. Students may request to pursue a minor in a related field if the coursework can be completed within the 216-unit limit.

The curriculum at UCLA must be completed with a minimum overall grade-point average of

2.0 (C) or better in all courses taken while a student in the School of Nursing.

Each required nursing course in the school must be completed with a grade of C or better (C– grade is not acceptable).

Nursing B.S. R.N. to B.S./Postlicensure

The focus of the R.N. to B.S./postlicensure program is on community-based nursing care and cultural and human diversity. The curriculum is designed to assist registered nurses in gaining new knowledge needed for professional nursing in a changing society and to build on their earlier associate degree or diploma education. The program also provides a bridge for students who may wish to prepare for advanced practice study at the graduate level.

Emphasis is placed, throughout the curriculum, on concepts related to (1) contributing to the viability of academic health centers through responsiveness to community needs, (2) improving care of the underserved in community clinics in inner-city urban and rural settings, and (3) redesigning the role of public (community) healthcare through community outreach, home-based health services, and population-based health promotion.

Admission

The School of Nursing strives to attract a culturally and ethnically diverse student population. Admission, beginning in the junior year, requires licensure as a registered nurse and a minimum of one year of full-time experience as an R.N. within the past five years, completion of requisite courses, scholarship, and attainment of a passing score on four Excelsior College Examinations. Students must have a grade of C or better in each requisite course and an overall grade-point average of 3.0 or better prior to admission.

Three recommendation forms and a written statement of purpose are also required. Diverse life experiences, including previous employment, volunteer work, and community service that reflect leadership, responsibility, multi-cultural involvement, multilingual abilities, and other unusual skills and knowledge are evaluated for all applicants. Consideration is also given to students who are socially, economically, and educationally disadvantaged. Completed applications should reflect clearly identified career goals and documentation of potential in advanced practice nursing.

Transcripts of all high school and college work must be submitted to the UCLA Office of Undergraduate Admissions and Relations with Schools and the School of Nursing. Applicants already enrolled at UCLA need to submit transcripts to the School of Nursing.

Preparation for the Major

Required: Completion of each University and school requirement course with a grade of C or better (C– grade is not acceptable) prior to admission as follows: human anatomy (one course), sociocultural anthropology (one course),

humanities (one or more courses), introductory or general microbiology with laboratory (one course), introductory physics (one course or one year of high school physics with laboratory with a grade of B or better), human physiology (one course), introductory psychology (one course), introductory sociology (one course).

The Major

Required: Completion of 76 to 85 units of lower and upper division coursework, including Bio-statistics 100A, Chemistry and Biochemistry 14A, 14B, 14C, Life Sciences 2, 3, Nursing 50, 102, 109, 152W, C160, 168, 171C, 171D, 173, 174, 200, 220, and one or more courses from 213A, 214F, 216F, 219A, 232F, and three 4-unit electives related to nursing to be selected with consent of the adviser, depending on student interest and area of concentration.

The curriculum at UCLA must be completed with a minimum overall grade-point average of 2.0 (C) or better in all courses taken while a student in the School of Nursing.

Each required nursing course in the school must be completed with a grade of C or better (C– grade is not acceptable).

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The School of Nursing offers the Master of Science in Nursing (M.S.N.) degree and the Doctor of Philosophy (Ph.D.) degree in Nursing. A concurrent degree program (Nursing M.S.N./Management M.B.A.) is also offered.

Nursing

Lower Division Courses

10. Introduction to Nursing and Social Justice I. (2) Lecture, two hours. Within context of history of nursing, introduction to practice of nurses, including role of advocacy. Discussion of effective use of self as professional nurse in relation to ethics, cultural competence, and human diversity. Introduction to ethical principles (justice, autonomy, veracity, beneficence, confidentiality) and professional values (altruism, autonomy, human dignity, integrity, and social justice) in relation to nursing practice throughout history in health/illness and end-of-life contexts. Letter grading.

20. Introduction to Nursing and Social Justice II. (2) Lecture, two hours. Advanced discussion on history of nursing, with focus on role of contemporary nursing in relation to ethics and social justice. Analysis of ethical principles (justice, autonomy, veracity, beneficence, confidentiality) and professional values (altruism, autonomy, human dignity, integrity, and social justice) in relation to nursing practice throughout history in health/illness and end-of-life contexts. Evaluation of social, cultural, legal, and political forces in relation to paternalism for professional nurses working with diverse patient populations in the 21st century. Letter grading.

50. Fundamentals of Epidemiology. (4) Lecture, three hours; laboratory, three hours. Epidemiology focuses on distribution and determinants of health-related states or events in specified populations. Fundamentally, epidemiology seeks to control health problems in communities and institutions. Letter grading.

54A. Pathophysiology I. (3) Lecture, three hours. Preparation: human physiology course taken within past five years. Designed to provide students with basic understanding of pathophysiological changes that occur within internal environment of individuals. Understanding these alterations is basic to providing quality nursing care. Discussion of system variations across lifespan. Letter grading.

54B. Pathophysiology II. (2) Lecture, two hours. Requisite: course 54A. Designed to provide students with understanding of pathophysiological changes that occur within internal environment of individuals. Presence of dysfunction or disease of selected systems provided as rationale for nursing diagnosis and therapeutic interventions. Letter grading.

Upper Division Courses

102. Professional Nursing in Culturally Diverse Communities. (5) Lecture, four hours; community experience, three hours. Introductory course to assist registered nurses in transition to professional nursing in context of complex and dynamic healthcare system. Analyses include individual and population-based approaches to healthcare in dynamic multicultural communities. Letter grading.

105. Human Physiology. (4) Lecture, three hours; discussion, one hour. Designed for nursing students. Lecture and discussion, with emphasis on a correlative approach to anatomy and physiology of human body. P/NP or letter grading.

109. Human Diversity in Health and Illness. (4) (Formerly numbered C109.) Lecture, four hours. Human diversity in response to illness that nurses diagnose and treat, centering on culture and human belief systems associated with diverse orientations related to ethnicity and gender. Provides conceptual base that nurses can use in clinical practice, research, teaching, and administration. Letter grading.

115. Pharmacology and Therapeutics. (5) Lecture, four hours. Requisites: courses 54A, 54B. Clinical pharmacology for undergraduate nursing students, beginning with emphasis on basic pharmacologic principles. Focus on major drug classes and their mechanism of action, pharmacokinetics, adverse effects, and clinical issues. Letter grading.

150A. Fundamentals of Professional Nursing. (4) (Formerly numbered 150.) Lecture, four hours. Introduction to practice of professional nursing as theory-based goal-directed method for assisting patients to meet basic human needs at various levels of health continua. Concepts of communication, interdisciplinary communication and collaboration, interpersonal relationships, and nursing process as clinical decision-making strategy essential to practice of professional nursing. Essentials of nutrition. Characteristics and roles of professional nursing. Development of caregiver, teacher, and collaborator roles in learning experiences in nursing skills laboratory and clinical settings. Letter grading.

150B. Fundamentals of Professional Nursing Laboratory. (1) Laboratory, three hours. Corequisite: course 150A. Introduction to practice of professional nursing as theory-based goal-directed method for assisting patients to meet basic human needs at various levels of health continua. Concepts of communication, interdisciplinary communication and collaboration, interpersonal relationships, and nursing process as clinical decision-making strategy essential to practice of professional nursing. Learning experiences in nursing skills laboratory and clinical settings. P/NP grading.

152W. Human Development/Health Promotion in Culturally Diverse Populations. (5) (Formerly numbered 152.) Lecture, four hours; discussion, two hours. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Limited to nursing students. Introduction to primary prevention

strategies as they pertain to health and wellness across lifespan, using population-based approach to nursing care of diverse populations. Priorities in nutrition and reproductive health, including issues related to contraception and parenting; well-child care, school-age health, and chronic illness prevention strategies for young- and middle-aged adults; elderly who live independently in communities or within institutions. Analysis of influence of overarching political, societal, and governmental systems within U.S. Satisfies Writing II requirement. Letter grading.

C155. Mental Health/Illness. (3) Lecture, three hours. Behavioral and biologic theories and research of mental health/illness and psychopathology. Theoretical knowledge development and skill assessment needed to promote mental health of individuals and communities. Exploration of research underlying assessment, diagnosis, and treatment of individuals with cognitive, behavioral, attentional, and mood disorders, pharmacotherapeutic and psychological treatment of individuals, and substance use and dependence. Concurrently scheduled with course C255. Letter grading.

M158. Culture, Illness, and Healing. (4) (Same as Anthropology M168.) Lecture, four hours. Medical anthropology is organized around holistic exploration of ways in which health, illness, and medical practices are socially and culturally mediated. Topics include comparing illness experiences, understandings about health and illness, patterns of care seeking, therapeutic practices, and medical systems in context of different social and cultural settings, including our own. P/NP or letter grading.

C160. Secondary Prevention. (4) Lecture, four hours. Requisite: course 152. Corequisite: course 161. Screening and early detection of illness to prevent chronic or acutely deteriorating illness. Expanding on concepts of health and human development and using nursing process, application of nursing role in providing care to individuals and their families to screen, diagnose, and treat illness at earliest possible time to prevent disability or premature mortality. Examination of health problems of individuals within context of family, social and community systems, and interdisciplinary healthcare systems. Emphasis on differences in developmental stages in response to screening for early and late signs and symptoms of illness in ambulatory and acute care settings, community agencies, rehabilitation units, outpatient specialty clinics and surgical units, and home and community settings. Concurrently scheduled with course C260. Letter grading.

161. Clinical Internship: Mental Health. (2) Clinical, six hours. Requisites: courses 165A, 165B, 166, 167. Corequisite: course C155. Supervised practicum experience within setting of multidimensional team, with focus on beginning-level assessment, health maintenance, and management of psychiatric symptomatology across lifespan. P/NP grading.

162A. Tertiary Prevention and Care: Medical-Surgical/Gerontology I. (5) (Formerly numbered C162.) Lecture, five hours. Requisites: courses 115, C160, 174. Corequisite: course 163. Examination of pathophysiological and psychosocial aspects of assessment and management for selected acute and emergent problems of patients/clients across lifespan, with emphasis on social, cultural, and developmental influences. Building on prior knowledge and experience, integration of basic knowledge of pathophysiology, diagnostics, pharmacology, therapeutic interventions, and communication concepts as applied to care of medical and surgical clients across lifespan. Discussion of application of nursing process, evidenced-based practice, and problem solving. Letter grading.

162B. Tertiary Prevention and Care: Maternity. (3) Lecture, three hours. Requisites: courses 115, C160, 174. Corequisite: course 164. Examination of pathophysiological and psychosocial aspects of assessment and management for selected acute and emergent problems of maternity/newborn patients, with emphasis on social, cultural, and developmental influences. Building on prior knowledge and experience, integration of basic knowledge of pathophysiol-

ogy, diagnostics, pharmacology, therapeutic interventions, and communication concepts as applied to care of childbearing families. Discussion of application of nursing process, evidenced-based practice, and problem solving. Letter grading.

163. Clinical Internship: Medical-Surgical/Gerontology I. (4) Clinical, 12 hours. Requisites: courses 115, C160, 174. Corequisite: course 162A. Supervised practicum experience within setting of multidimensional team, with focus on application of theory in clinical interpretation of assessment and diagnostic data for purpose of planning, implementing, and evaluating course of care for patients, both as individuals and cohorts. Beginning-level assessment, health maintenance, and management of symptomatology across lifespan. P/NP grading.

164. Clinical Internship: Maternity. (2) Clinical, six hours. Requisites: courses 115, C160, 174. Corequisite: course 162B. Supervised practicum experience within setting of multidimensional team, with focus on application of theory in clinical interpretation of assessment and diagnostic data for purpose of planning, implementing, and evaluating course of care for patients, both as individuals and cohorts. Beginning-level assessment, health maintenance, and management of symptomatology across lifespan. P/NP grading.

165A. Tertiary Prevention and Care: Medical-Surgical/Gerontology II. (5) (Formerly numbered C165.) Lecture, five hours. Requisites: courses 162A, 162B, 163, 164. Corequisite: course 166. Examination of pathophysiological and psychosocial aspects of assessment and management for selected acute and emergent problems of patients/clients across lifespan, with emphasis on social, cultural, and developmental influences. Building on prior knowledge and experience, integration of basic knowledge of pathophysiology, diagnostics, pharmacology, therapeutic interventions, and communication concepts as applied to care of medical and surgical clients across lifespan. Discussion of application of nursing process, research, problem solving, and critical thinking. Letter grading.

165B. Tertiary Prevention and Care: Pediatrics. (3) Lecture, three hours. Requisites: courses 162A, 162B, 163, 164. Corequisite: course 167. Examination of pathophysiological and psychosocial aspects of assessment and management for selected acute and emergent problems of pediatric patients/clients, with emphasis on social, cultural, and developmental influences. Building on prior knowledge and experience, integration of basic knowledge of pathophysiology, diagnostics, pharmacology, therapeutic interventions, and communication concepts as applied to care of pediatric clients. Discussion of application of nursing process, research, problem solving, and critical thinking. Letter grading.

166. Clinical Internship: Medical-Surgical/Gerontology II. (4) Clinical, 12 hours. Requisites: courses 162A, 162B, 163, 164. Corequisite: course 165A. Supervised observation experience within setting of multidimensional team, with focus on observation of workings of complex healthcare teams. Mid-level assessment, health maintenance, and management of symptomatology across lifespan. P/NP grading.

167. Clinical Internship: Pediatrics. (3) Clinical, six hours; simulation laboratory/discussion, three hours. Requisites: courses 162A, 162B, 163, 164. Corequisite: course 165B. Supervised practicum experience within setting of multidimensional team on pediatric clinical units and in simulation laboratory, with focus on application of theory in clinical interpretation of assessment and diagnostic data for purpose of planning, implementing, and evaluating nursing care for infants, children, and adolescents. Intermediate-level assessment, health maintenance, and management of symptomatology among infants, children, and adolescents. P/NP grading.

168. Advanced Leadership and Role Integration. (4) Lecture, four hours. Leadership and management theories and models, resource allocation and management, delegation, conflict resolution, legal implications and practice, managed care, evaluation of practice, continuous quality improvement, accreditation process for healthcare systems, and contemporary is-

ssues in workplace. Emphasis on integration of all professional role behaviors, application of research, and leadership-management of care as transition is made from student role to that of practicing professional nurse. Preparation for National Council Licensure Examination (NCLEX). Letter grading.

169. Clinical Internship: Integration. (12) Clinical, 36 hours. Requisites: courses C155, 161, 165A, 165B, 166, 167. Supervised practicum experience within setting of multidimensional team, with focus on application of theory in clinical interpretation of assessment and diagnostic data for purpose of planning, implementing, and evaluating course of care for patients, both as individuals and cohorts. Beginning-level assessment, health maintenance, and management of symptomatology across lifespan. P/NP grading.

171C. Public Health Nursing. (3) Lecture, three hours. Requisites: courses 171A, 171B. Theoretical content focuses on population-based approach to public health nursing in relation to health promotion and disease prevention at level of communities, other large population aggregates, and systems. Letter grading.

171D. Public Health Nursing. (3) Clinical, nine hours. Corequisite: course 171C. Clinical concentration in population-based public health nursing in culturally diverse settings, including health departments, health policy institutions, and public service agencies. Public health nursing practice activities focus on health promotion and disease prevention at level of communities, aggregates, whole populations, and systems, both domestically and internationally. P/NP grading.

173. Introduction to Research. (4) Lecture, four hours. Introduction to planning research project based on simple question. Specific components of research activities analyzed: specific aims and study purposes, variable definition, sample selection, data collection tools, data analyses, and ethical conduct in research studies. Critique of research reports. P/NP or letter grading.

174. Physical Assessment. (4) Lecture, three hours; laboratory, three hours. Designed to provide in-depth review and synthesis of physical assessment skills and knowledge covering lifespan. Individual study, use of audiovisual aids, physical assessment skills practice in laboratory, and required text are mandatory. Letter grading.

197. Individual Studies in Nursing. (2 to 4) Tutorial, one hour. Limited to junior/senior Nursing majors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200. Health Promotion and Assessment across Lifespan. (4) Lecture, four hours. Review and discussion of research, theories, clinical practice guidelines, healthcare systems, and policies that influence assessment of health and health behaviors, health promotion, and screening of disease across lifespan among diverse populations in multiple settings in communities for advanced practice nurse (clinical nurse specialist and nurse practitioner). Letter grading.

201. Health-Related Quality of Life. (2) Lecture, two hours. Theoretical foundations of health-related quality of life as an outcome of disease, treatment, and style of care. Analysis of meaning, dimensions, predictors, measures, ethical dilemmas, cultural diversity issues, and biobehavioral foundations of health-related quality of life. Letter grading.

202. Philosophy of Nursing Science. (4) Lecture, four hours. Exploration of concepts of importance related to history of philosophy, history of science, and philosophy of science as context for study of philosophy of nursing science. Genealogies of thought that underpin assumptions about knowledge and knowledge development in relation to discipline of nursing and of questions related to methods of inquiry and scientific reasoning. Contemporary schools of thought (modern and

postmodern) analyzed, with emphasis on their philosophical and historical roots in relation to nursing scholarship and nursing science. Letter grading.

203A. Basic Statistics and Fundamentals for Analysis. (4) Lecture, four hours. Introduction to applied statistics, including design, analysis of variance, correlation techniques, and regression. Sample size calculations, parametric versus nonparametric tests, and concepts of database design, management using statistical package programs. Letter grading.

203B. Statistical Approaches for Complex Nursing Phenomena. (4) Lecture, four hours. Requisite: course 203A. Use of multiple linear regression, including model validation, discriminant function analysis, principal components analysis, factorial and repeated measure analysis of variance models, logistic regression, analysis of survival data. Letter grading.

204. Research Design and Critique. (4) Lecture, 90 minutes; discussion, 90 minutes. Requisite: course 173 or equivalent upper division basic research methodology course. Complex research designs and analysis of multiple variables, and research utilization. Emphasis on techniques for control of variables, data analysis, and interpretation of results. Analysis in depth of interrelationship of theoretical frameworks, design, sample selection, data collection instruments, and data analysis techniques. Content discussed in terms of clinical nursing research problems and how these apply to clinical settings. Letter grading.

205A. Introduction to Qualitative Methods in Research. (4) (Formerly numbered 205.) Lecture, four hours. Requisite: course 202. Introduction to qualitative research design in nursing science. Examination of major methodologies that guide qualitative research in relation to various strategies for data collection (interviews, participant observation, focus groups), data analysis, and data interpretation. Scientific rigor and ethical concerns for research with human participants critically examined. Letter grading.

205B. Advanced Qualitative Research Methodology I. (4) Lecture, four hours. Requisites: course 205A, submission of OPRS application for small pilot study in fall of second year. In-depth analysis of symbolic interactionism and pragmatism as foundation for study of grounded theory methodology as guide to study design development, including sampling plan, interview strategies for data collection, and basic coding. Exploration of self-reflexivity and ethics in relation to entrée to field, recruitment of pilot study participants, interviewing, and preliminary data analysis via analytic, theoretic, and reflective memos based on pilot study data collected as part of course. Letter grading.

205C. Advanced Qualitative Research Methodology II. (4) Lecture, four hours. Requisites: courses 205, 205B. Advanced techniques for simultaneous collection and analysis of qualitative data. Expansion on traditional grounded theory analysis procedures by learning and applying situational analysis and constructivist grounded theory techniques to analysis of data. Development of conceptual formulation (or grounded theory) of student-selected phenomenon based on pilot study data collected and analyzed as part of course. Letter grading.

206. Nursing Theory Development. (4) Lecture, four hours. Critical examination of theoretical and conceptual thinking in nursing and issues that continue to influence development of nursing knowledge and nursing science. Application of analytical and evaluative skills fundamental to development of theory in nursing and integral to use of theory in nursing research. Letter grading.

207. Quantitative Research Designs of Clinical Phenomena. (4) Lecture, three hours; discussion, one hour. Introduction to wide array of quantitative research designs for testing clinical nursing phenomena. Emphasis on dynamic interaction between research process and theory, as well as on appropriate use of experimental, quasi-experimental, and correlational designs among diverse populations. Approaches for evaluation of validity of various research designs, with analysis of related threats to validity of each design. Letter grading.

208. Research in Nursing: Measurement of Outcomes. (4) Lecture/discussion, three hours. Requisites: courses 206, 207. Advanced discussions of psychosocial, behavioral, and biophysical measurement and analysis in nursing research. Analysis of psychometrics, reliability, and internal validity of research instruments in relation to outcomes in nursing research. Letter grading.

209. Human Diversity in Health and Illness. (4) (Formerly numbered C209.) Lecture, four hours. Human diversity in response to illness that nurses diagnose and treat, centering on culture and human belief systems associated with diverse orientations related to ethnicity and gender. Provides conceptual base that nurses can use in clinical practice, research, teaching, and administration. Letter grading.

210. Nursing Science. (4) (Formerly numbered 210A.) Lecture, four hours. Designed for Ph.D. students. Exploration of phenomena of interest to nurse scholars from past to present and future in relation to proposed domains of nursing (person, environment, health, and nursing). Investigation of state of science in nursing, with special focus on health service, biological, vulnerable populations, and biobehavioral nursing research. Integration and synthesis of current and historical scholarly findings of particular phenomena in literature to identify meaningful gaps in knowledge and directions for future research. Letter grading.

211. Theoretical Foundations of Women's Health Care during Reproductive Years. (4) Lecture, three hours; discussion, one hour. Theory and research on assessment and management of women's health issues during reproductive years. Clinical topics include gynecology, family planning, pregnancy, and postpartum care, with emphasis on health promotion of women during reproductive years in primary care settings. Letter grading.

212. Health-Related Family Theory. (2) Lecture, two hours. Overview of conceptual frameworks related to contemporary family structure and functioning, with particular emphasis on health. Family is defined broadly to include nontraditional families; consideration of cross-cultural views of families as well. Identification of limitations of current theory and research related to family study and applicability of current knowledge to various problems encountered in care of families. Letter grading.

213A. Occupational Health Nursing Role and Theory. (4) Lecture, four hours. Introduction to multidisciplinary occupational health environment, including work settings, occupational health nursing scope and standards of practice, and legal and regulatory issues that affect occupational health nursing. Letter grading.

213B. Health Assessment, Research, and Health Promotion in Occupational Health. (3) Lecture, three hours. Requisite: course 213A. Clinical practice issues in occupational health nursing, including adult workforce health issues, adult workforce health assessment, and special populations at risk. Health promotion and research in occupational health. Letter grading.

214. Human Responses to Cancer. (2) Lecture, two hours. Synthesis of cancer-related research and theory of principles of cancer, cancer prevention, screening, diagnosis, staging, treatment, symptom management, rehabilitation, and quality of life, with application to advanced oncology nursing practice. Assessment and evaluation of selected clinical oncology resources in community. Development of research-based clinical paper. Letter grading.

214F. Human Responses to Cancer. (4) Lecture, three hours; selected field experiences. Synthesis of cancer-related research and theory of principles of cancer, cancer prevention, screening, diagnosis, staging, treatment, symptom management, rehabilitation, and quality of life, with application to advanced oncology nursing practice. Assessment and evaluation of selected clinical oncology resources in community. Development of research-based clinical paper. Letter grading.

215. Human Responses to Cancer. (2) Lecture, three hours. Application of cancer-related theory/research to clinical practice, with emphasis on assessment and intervention of nursing care problems in re-

sponse to cancer and cancer treatment. Focus on issues affecting nursing care in prevention, screening, diagnosis, treatment, symptom management, rehabilitation, and quality of life related to responses to major cancers. Letter grading.

215F. Human Responses to Cancer. (4) Lecture, three hours; selected field experiences. Requisite: course 214F. Application of cancer-related theory/research to clinical practice, with emphasis on assessment and intervention of nursing care problems in response to cancer and cancer treatment. Focus on issues affecting nursing care in prevention, screening, diagnosis, treatment, symptom management, rehabilitation, and quality of life related to responses to major cancers. Letter grading.

216. Human Responses to Critical Illness. (2) Lecture, two hours. Biobehavioral theories and research of acute and critical illness. Nursing aspects of selected dysfunctions and implications for acute care advanced practice nurses. Letter grading.

216F. Human Responses to Critical Illness. (4) Lecture, three hours; discussion, one hour. Biobehavioral theories and research of acute and critical illness. Nursing aspects of selected dysfunctions and implications for acute care advanced practice nurses. Letter grading.

217. Human Responses to Critical Illness. (2) Lecture, two hours. Requisite: course 216. Builds on pathophysiologic concepts and nursing management of acutely and critically ill adults presented in course 216. Emphasis on synthesis of research, theory, and experiential knowledge and skills to provide advanced preparation for acute care advanced practice nurses. Letter grading.

217F. Human Responses to Critical Illness. (4) Lecture, three hours; discussion, one hour. Requisite: course 216F. Builds on pathophysiologic concepts and nursing management of acutely and critically ill adults presented in course 216F. Emphasis on synthesis of research, theory, and experiential knowledge and skills to provide advanced preparation for acute care advanced practice nurses. Letter grading.

218A. Nursing Administration Theory. (4) Lecture, four hours. Requisites: courses 219A, 219B. Synthesis and evaluation of organizational theory in leadership and management of healthcare organizations, with emphasis on organizational structure, processes, and outcomes. Letter grading.

218B. Nursing Administration Theory. (4) Lecture, four hours. Requisite: course 218A. Focus on synthesizing organizational and management theories in relation to strategic planning and management, changing care delivery systems, human and financial resource management, decision making, management information systems, professional practice, and meeting accreditation and legal standards. Letter grading.

218C. Nursing Administration Theory. (4) Lecture, four hours. Requisite: course 218B. Project management, organizational communication, governance, development and change, diverse relationships within organizations, risk management, liability, and ethics of administration decision making. Emphasis on issues affecting local, national, and international healthcare management. Letter grading.

218D. Nursing Administration Theory. (4) Lecture, four hours. Requisite: course 218C. Community healthcare needs, political action and healthcare policy, marketing, and media. Planning for future continuous personal and professional growth. Emphasis on issues affecting local, national, and international healthcare management and policy development. Letter grading.

219A. Essentials of Accounting and Budgeting in Healthcare Organizations. (4) Lecture, four hours. Theories of management, organization, and administration presented in relation to techniques of accounting, budgeting, finance, and healthcare economics. Focus on definition of terms and concepts, followed by practical applications within variety of healthcare settings. Letter grading.

219B. Operations Planning and Control for Nursing Administrators. (4) Lecture, four hours. Requisite: course 219A. Concepts, issues, and analytic techniques of budget formulation, decision making, variance analysis, financing in healthcare, models for forecasting productivity determinations, and program planning and evaluation for nurse administrators. Emphasis on practical methods and techniques within wide variety of healthcare situations. Letter grading.

220. Theories of Instruction and Learning in Nursing. (3) Lecture, two hours. Theories of learning, curriculum and program development, and principles and techniques of evaluation. Examination of educator role of advanced practice nurse in variety of settings and with diverse cultural and socioeconomic groups. Opportunities provided for skill development in use of computer-based information systems and development of instructional aids. Letter grading.

M221. Qualitative Research Design and Methodology for Indigenous Communities. (5) (Same as American Indian Studies M202 and Health Services M202.) Seminar, three hours. Introduction to some key theoretical themes in American Indian studies and exploration of methods that can be used to incorporate them in research on American Indian cultures, societies, languages, and other issues. Quantitative methods (design, appropriate use), with emphasis on qualitative research methods, ethics, and special considerations in conducting research in American Indian country. Design of research and exploration of feasibility of researching topics. Letter grading.

223. Childhood Development: Research and Application to Nursing. (3) Lecture, three hours. Critique and evaluation of current research and theory in child development and their application to care of children. Provides scientific basis for understanding human growth and development, anticipating problems, and managing barriers to growth and development throughout childhood. Letter grading.

224. Pharmacology for Advanced Practice Nurses. (5) Lecture, five hours. Requisite: course 231. In preparation for prescriptive authority, focus on major drug classes and their mechanisms of action, pharmacokinetics, adverse effects, and clinical uses. Advanced knowledge of and skills in pharmacology for clients/patients with stable acute or chronic conditions. Letter grading.

225A. Advanced Pharmacology I. (3) Lecture, two hours. Course 225A is enforced requisite to 225B. Basic pharmacological principles in addition to clinical knowledge and skills necessary for care of clients/patients with stable acute or chronic conditions. Focus on major drug classes and their mechanisms of action, pharmacokinetics, adverse effects, and clinical uses. Letter grading.

225B. Advanced Pharmacology II. (2) Lecture, two hours. Enforced requisite: course 225A. Knowledge of and skills in pharmacology necessary for care of clients/patients with stable acute or chronic conditions. Letter grading.

226. Seminar: Aging Research. (2) Seminar, two hours. Preparation: completion of first-year coursework. Discussion and conceptualization of gerontological nursing concepts within context of specialty areas of research (acute care, oncology, occupational health, and gerontological nursing). Provides opportunity for students to integrate gerontological nursing concepts into their evolving dissertation research and to examine state of science in their areas of focus. Core faculty from all specialty areas participate in discussions. S/U grading.

227. Ethnogeriatric Nursing. (4) Lecture, three hours. Requisite: course 209. Identification of unique content related to minority aging using Giger and Davidhizar Transcultural Assessment Model. Examination of transcultural nursing viewed as culturally competent practice that is both client centered and research focused. Exploration of difference between Eurocentric lens and geroethnic lens when providing nursing care to ethnically and racially diverse elders. In-depth examination of issues related to conducting research with elders who are racially and ethnically diverse in variety of healthcare settings. Study de-

signs for conducting research, issues surrounding informed consent of minority elders, and data collection techniques, including critique and use of data collection instruments used in community and long-term care settings, behavioral observations, interviews, and surveys. Letter grading.

228. Research Methods for Aging Populations. (4)

Lecture, three hours. Requisites: courses 204, 205A, 207. Corequisite: course 208. In-depth examination of issues related to conducting research with elders in variety of healthcare settings. Study designs for conducting research in community and long-term care settings, issues surrounding informed consent, planning for mortality and morbidity, data collection techniques for frail elders, including use of assessment tools used in community and long-term care settings, behavioral observations, interviews, and surveys, and statistical analysis techniques related to missing data, longitudinal data analysis, clustering, and repeated measures. Letter grading.

230A-230B. Advanced Pathophysiology I, II. (2-2)

(Formerly numbered 230.) Lecture, two hours. Requisite: course 105 or equivalent taken within past five years. Course 230A is requisite to 230B. In-depth examination of pathophysiological processes that underlie human illness and disease, with detailed study of these in major body systems. Analysis of manifestations of and responses to processes of cellular and molecular pathology at extracellular, system, and human levels. Letter grading.

231. Pathophysiology for Advanced Practice Nurses. (4) (Not same as course 231 prior to Fall Quarter 2010.) Lecture, four hours. In-depth examination of pathophysiological processes that underlie human illness and disease, with detailed study of these in major body systems. Analysis of manifestations of, and responses to, processes of cellular and molecular pathology at extracellular, system, and human levels with implications for advanced practice nursing. Letter grading.

232. Human Responses to Aging and Chronic Illness. (2) Lecture/discussion, four hours. Pathophysiological concepts and nursing management of older adults who are healthy or who have disability and/or chronic illness. Nursing aspects of selected dysfunctions and implications for advanced practice in gerontological nursing. Letter grading.

232F. Human Responses to Aging and Chronic Illness. (4) Lecture/discussion, four hours. Pathophysiological concepts and nursing management of older adults who are healthy or who have disability and/or chronic illness. Nursing aspects of selected dysfunctions and implications for advanced practice in gerontological nursing. Letter grading.

233. Human Responses to Aging and Chronic Illness. (2) Lecture/discussion, four hours. Biopsychosocial concepts and nursing management of healthy, disabled, and/or chronically ill older adults, addressing pathophysiological aspects of common health problems. Implications for advanced practice in gerontological nursing. Letter grading.

233F. Human Responses to Aging and Chronic Illness. (4) Lecture/discussion, four hours. Biopsychosocial concepts and nursing management of healthy, disabled, and/or chronically ill older adults, addressing pathophysiological aspects of common health problems. Implications for advanced practice in gerontological nursing. Letter grading.

236. Essential Theoretical Foundations of Primary Care of Children. (4) Lecture, four hours. Requisite: course 200. Preparation of family nurse practitioners to assume responsibility for health promotion and illness prevention, and maintenance and management of common developmental, behavioral, acute, and chronic health problems of infants, children, and adolescents in primary healthcare settings. Presentation of condition or disease, etiology and incidence, clinical findings, differential diagnosis, pharmacologic and treatment management, complications, and preventive and patient education measures. Examination of primary child health delivery model reliant on evidence-based knowledge, practice protocols, consultation, referral, and community resources. Letter grading.

238A. Theoretical Foundations of Nursing of Children: Assessment and Health Guidance. (2 or 4)

Lecture, four hours. Requisite: course 200. Theory and research emphasize interaction among developmental level, family characteristics, and environmental milieu as it affects child well-being. Advanced science base for assessment and anticipatory guidance for children and families to promote child wellness and diagnose common childhood illnesses. Letter grading.

238B. Theoretical Foundations of Nursing of Children: Common Illnesses and Problems. (2 or 4)

Lecture, four hours. Requisite: course 238A. Theory and research emphasize physiological and psychological basis for common childhood illnesses and problems; evaluation of alternative therapies in research literature also emphasized. Advanced science base for assessment, diagnosis, and management of common childhood illnesses and problems. Letter grading.

238C. Theoretical Foundations of Nursing of Children: Complex Health Problems. (4) Lecture, four hours. Requisite: course 238B. Advanced science base for assessment, diagnosis, and ambulatory management of complex chronic and acute childhood illnesses. Theory and research emphasize physiological basis for complex disease entities; evaluation of alternative therapies in research literature also emphasized. Letter grading.

239A. Assessment and Management in Adult Healthcare I. (4) Lecture, four hours. Requisites: courses 225A, 225B, 230A, 230B. Organ systems approach to acuity and chronicity in syndromes related to respiratory, cardiovascular, dermatologic, and genitourinary organ systems and selected content in oncology. First of three-course sequence in diagnosis and management of commonly occurring medical and nursing healthcare problems managed by advanced practice nurses and nurse practitioners in variety of clinical settings. Letter grading.

239B. Assessment and Management in Adult Healthcare II. (4) Lecture, four hours. Requisite: course 239A. Second of three-course sequence in assessment, diagnosis, and management of common acute and chronic adult health problems and conditions, including urgent care. Presentation of multiple approaches needed for special populations requiring adult healthcare, including developmental, gender, life-stage perspectives, and functional impairment, such as chronic pain and disability. Demonstration of applications and evaluation of evidence-based interventions and clinical guidelines in adult population (adolescence through old age). Letter grading.

239C. Assessment and Management in Adult Healthcare III. (4) Lecture, four hours. Requisite: course 239B. Organ systems approach to acuity and chronicity in syndromes related to musculoskeletal and hematological disorders, HIV/AIDS, and vestibular system. Third of three-course sequence in diagnosis and management of commonly occurring medical and nursing healthcare problems managed by advanced practice nurses and nurse practitioners in variety of clinical settings. Letter grading.

241. Biobehavioral Foundations of Neuropsychiatric Assessment. (2) Lecture, two hours. Biologic and behavioral theories and research from variety of disciplines, including nursing, for application to neuropsychiatric assessment and diagnosis. Exploration of theory and research evidence underlying assessment and diagnosis of cognitive, addictive, and affective dysfunctions, with emphasis on developing behavioral nursing approach. Letter grading.

241F. Biobehavioral Foundations of Neuropsychiatric Assessment. (4) Lecture, four hours. Biologic and behavioral theories and research from variety of disciplines, including nursing, for application to neuropsychiatric assessment and diagnosis. Exploration of research underlying assessment and diagnosis of cognitive, addictive, and affective dysfunctions, with emphasis on developing a behavioral nursing approach. Letter grading.

242. Biobehavioral Foundations of Neuropsychiatric Nursing Care. (2) Lecture, two hours. Concepts and principles of working with individuals and groups using psychotherapeutic nursing practices. Discussion of evolution of these modalities in nursing practice, as well as theory and research evidence underlying treatment of individuals with cognitive and attention deficits and thought, addictive, and mood disorders, with emphasis on developing unified approach to management of biobehavioral symptoms in advanced nursing practice. Letter grading.

242F. Biobehavioral Foundations of Neuropsychiatric Nursing Care. (4) Lecture, four hours. Biologic and behavioral research from variety of disciplines, including nursing, for application to treatment of neuropsychiatric dysfunction. Exploration of research underlying treatment interaction in cognitive, addictive, and affective dysfunctions, with emphasis on developing a biobehavioral nursing approach. Letter grading.

242F. Biobehavioral Foundations of Neuropsychiatric Nursing Care. (4) Lecture, four hours. Biologic and behavioral research from variety of disciplines, including nursing, for application to treatment of neuropsychiatric dysfunction. Exploration of research underlying treatment interaction in cognitive, addictive, and affective dysfunctions, with emphasis on developing a biobehavioral nursing approach. Letter grading.

245. Theoretical Foundations of Clinical Nurse Specialist Practice. (4) Lecture/discussion, four hours. Theoretical foundations of clinical nurse specialist practice, including systems theory, behavioral theories, consultation theory, change theory, and models of research utilization. Emphasis on application of relevant theories to clinical nurse specialty practice roles in healthcare systems through case-study analysis, with focus on application to clinical practice settings which include culturally diverse populations. Letter grading.

249. Meeting Health-Related Needs in Underserved Populations. (4) Lecture, four hours. Requisite: course 439A. Examination of systematic barriers within healthcare settings that limit access to those in greatest need of culturally appropriate interventions. Unmet healthcare needs often result in health disparities and compromised quality of life among underserved, low income, uninsured, marginalized populations. Analysis of current evidence-based strategies and interventions designed to address these clinical problems and improve outcomes in culturally competent manner. Presentation of context of healthcare financing, limited access, and public policy. Letter grading.

250. Ethical Issues, Social Justice, and History of Nursing. (5) Lecture, five hours. Interplay of social, cultural, legal, and political forces in the U.S. form background for study of ethical issues related to role of nurses as advocates for social justice in contemporary society today. Analysis situated within context of history of nursing, with emphasis on human rights, civil rights, and patient rights. Discussion of evolution of professional nursing within healthcare arenas in relation to ethical principles, cultural competence, and human diversity. Letter grading.

252. Health Promotion/Risk Reduction Systems: Population Level. (5) Lecture, four hours; fieldwork, three hours. Introduction to primary, secondary, and tertiary prevention strategies as they pertain to health and wellness across lifespan, using population-based approach to nursing care of diverse populations. Priorities in reproductive health, including issues related to childbearing and parenting; well-child care, school-age health, and chronic illness prevention strategies for young- and middle-aged adults; priorities associated with aging, including chronic illness among both older independent and frail adults. Analysis of influence of overarching political, societal, and governmental systems within the U.S. Letter grading.

254A. Theoretical Foundations of Master's Entry Clinical Nurse Role. (4) (Formerly numbered 254.) Lecture, four hours. Theoretical foundations of primary, secondary, and tertiary prevention as they relate to nursing care management in acute care settings for master's entry clinical nurses (MECN). Emphasis on application of relevant theories to MECN practice roles in healthcare systems through case-study analysis, with focus on application to clinical practice settings that include culturally diverse populations. Discussion of case management, outcomes coordination, leadership, risk anticipation, information technology, and research utilization of MECN role as it relates to patient/client sphere of influence. Letter grading.

254B. Theoretical Foundations of Master's Entry Clinical Nurse Role Fundamentals Laboratory. (1) Laboratory, three hours. Focus on application to clinical practice settings that include culturally diverse populations. Discussion of case management, out-

comes coordination, leadership, risk anticipation, information technology, and research utilization of master's entry clinical nurse (MECN) role as it relates to patient/client sphere of influence. Letter grading.

C255. Mental Health/Illness. (3) Lecture, three hours. Behavioral and biologic theories and research of mental health/illness and psychopathology. Theoretical knowledge development and skill assessment needed to promote mental health of individuals and communities. Exploration of research underlying assessment, diagnosis, and treatment of individuals with cognitive, behavioral, attentional, and mood disorders, pharmacotherapeutic and psychological treatment of individuals, and substance use and dependence. Concurrently scheduled with course C155. Letter grading.

C260. Secondary Prevention. (4) Lecture, four hours. Requisite: course 252. Corequisite: course 225A. Screening and early detection of illness to prevent chronic or acutely deteriorating illness. Expanding on concepts of health and human development and using nursing process, application of nursing role in providing care to individuals and their families to screen, diagnose, and treat illness at earliest possible time to prevent disability or premature mortality. Examination of health problems of individuals within context of family, social and community systems, and interdisciplinary healthcare systems. Emphasis on differences in developmental stages in response to screening for early and late signs and symptoms of illness in ambulatory and acute care settings, community agencies, rehabilitation units, outpatient specialty clinics and surgical units, and home and community settings. Concurrently scheduled with course C160. Letter grading.

262A. Tertiary Prevention and Care: Medical-Surgical/Gerontology I. (5) (Formerly numbered 262.) Lecture, five hours. Requisites: courses 225A, 225B, 230A, 230B, 252, C255, C260, 461. Corequisite: course 463. First course in two-course sequence. Pathophysiological and psychosocial aspects of assessment and management for selected acute and emergent problems of patients/clients, with emphasis on social, cultural, and developmental influences. Integration of basic knowledge of pathophysiology, diagnostics, pharmacology, therapeutic interventions, and communication concepts as applied to care of medical-surgical clients (adult through geriatrics) with application of nursing process, evidenced-based practice, problem-solving strategies, and critical thinking. Diagnosis and management of acute and emergent healthcare problems managed by master's-level clinical nurses in acute care settings. Letter grading.

262B. Tertiary Prevention and Care: Maternity. (3) Lecture, three hours. Requisites: courses 225A, 225B, 230A, 230B, C255, C260, 461. Corequisite: course 462. Pathophysiological and psychosocial aspects of assessment and management for selected acute and emergent problems of maternity/newborn patients, with emphasis on social, cultural, and developmental influences. Integration of basic knowledge of pathophysiology, diagnostics, pharmacology, therapeutic interventions, and communication concepts as applied to care of childbearing families with application of nursing process, evidenced-based practice, problem-solving strategies, and critical thinking. Letter grading.

264. Professional Issues in Nursing. (3) Lecture, three hours. Requisite: course 418A or 438A or 439A. Assessment of organizational, legal, ethical, and healthcare policy issues in relation to delivery of healthcare services by advanced practice nurses in evolving healthcare system. Letter grading.

265A. Tertiary Prevention and Care: Medical-Surgical/Gerontology II. (5) (Formerly numbered 265.) Lecture, five hours. Requisites: courses 262A, 262B, 462, 463. Corequisite: course 465. Second course in two-course sequence. Pathophysiological and psychosocial aspects of assessment and management for selected acute and emergent problems of patients/clients, with emphasis on social, cultural, and developmental influences. Integration of basic knowledge of pathophysiology, diagnostics, pharmacology, thera-

peutic interventions, and communication concepts as applied to care of medical-surgical clients (adult through geriatrics) with application of nursing process, evidenced-based practice, problem-solving strategies, and critical thinking. Diagnosis and management of acute and emergent healthcare problems managed by master's-level clinical nurses in acute care settings. Letter grading.

265B. Tertiary Prevention and Care: Pediatrics. (3) Lecture, three hours. Requisites: courses 262A, 262B, 462, 463. Corequisite: course 464. Pathophysiological and psychosocial aspects of assessment and management for selected acute and emergent problems of infants, children, and adolescents, with emphasis on social, cultural, and developmental influences. Integration of basic knowledge of pathophysiology, diagnostics, pharmacology, therapeutic interventions, and communication concepts as applied to care of infants, children, and adolescents with application of nursing process, evidenced-based practice, problem-solving strategies, and critical thinking. Letter grading.

266. Healthcare Systems/Organizations. (4) Lecture, four hours. Development of understanding of ways healthcare is organized and delivered. Discussion of totality of healthcare systems, including establishment of private and public healthcare plans and delivery systems, development of managed care systems, common characteristics shared by HMOs/PPOs, and impact of managed care on nursing. Delivery of patient care within integrated care systems and on continuum of healthcare. Application of basic economic elements and financial concepts to nursing and healthcare organizations. Letter grading.

267. Healthcare Policy. (3) Lecture, three hours. Requisite: course 266. Analysis of healthcare policies and how policies impact clinical practice and healthcare delivery. Discussion of concepts related to policy-making, specifically how to formulate healthcare policy, how to affect political process, and stakeholder involvement in policy decision making and implementation. Development of understanding of increasing levels of public, governmental, and third-party participation in and scrutiny of shape and direction of healthcare system. Current mandated assembly bills and their effect on nursing. Concepts associated with escalating healthcare costs and cost containment efforts instituted by private and government sectors, as well as by individual healthcare institutions. Letter grading.

268. Systems (Hospital Unit): Individual Level. (4) Lecture, four hours. Requisite: course 267. Discussion of use of systems theory approach in providing patient-centered and value-added care. Functioning within systems, individual healthcare practitioners learn to use critical thinking and decision making to coordinate and deliver quality and cost-effective patient care. Development of understanding of different modes of organizing nursing care within unit environment, managing care within multidisciplinary team framework, and promoting effective teamwork that enhances patient outcomes, improves staff vitality, and reduces costs. Emphasis on concepts related to system theory, problem solving and decision making, nursing care delivery models, delegation, and team strategies. Letter grading.

269. Quality Improvement and Population-Based Quality of Practice. (4) Lecture, four hours. Requisite: course 268. Principal elements related to quality improvement theories and ways in which quality management impacts delivery of patient-centered and value-driven care, including improved system performance and efficient use of fiscal resources, quality improvement, and patient-population quality practice at organizational level. Review of individual methods to improve patient-care outcomes such as organizational support, effective teamwork, and quality-improvement concepts in workplace. Emphasis on quality management, adverse outcomes, evidence-based clinical and cost-control decision making, patient safety and risk reduction, resource management, and external impacts on quality control. Letter grading.

270. Human Responses to Critical Illness. (3) Lecture, three hours. Requisites: courses 464, 465. Pathophysiological concepts and nursing management of acutely and critically ill adult/geriatric patients, with focus on effect of critical illness on individual and family health. Key diagnostic and therapeutic modalities that promote effective nursing management of individuals with critical illness addressed. Letter grading.

M273. Advanced Seminar: Medical Anthropology. (2 to 4) (Same as Anthropology M263Q, Community Health Sciences M244, and Psychiatry M273.) Seminar, three hours. Limited to 15 students. Examination of interrelationships between society, culture, ecology, health, and illness. Bases for written critical analysis and class discussion provided through key theoretical works. S/U or letter grading.

M290A-M290B-M290C. Child Abuse and Neglect. (2-2-1) (Same as Community Health Sciences M245A-M245B-M245C, Dentistry M300A-M300B-M300C, Education M217G-M217H-M217I, Law M281A-M281B, Medicine M290A-M290B, and Social Welfare M203F-M203G-M203H.) Lecture, two hours. Course M290A is requisite to M290B, which is requisite to M290C. Intensive interdisciplinary study of child physical and sexual abuse and neglect, with lectures by faculty members of Schools of Dentistry, Law, Medicine, Nursing, and Public Health and Departments of Education and Psychology, as well as by relevant public agencies. Letter grading.

295A. Nursing Science Seminar. (1) Seminar, one hour. Introduction to nursing research methods, activities, and programs within specialty strands at UCLA School of Nursing: biobehavioral sciences, biologic sciences, health disparities/vulnerable populations, and health services. Exemplar work of UCLA nurse scholars highlighted. Overview of nursing research at UCLA and potential research opportunities for doctoral study. S/U grading.

295B-295C. Nursing Science Seminars. (1-1) Seminar, one hour. Requisite: course 295A. Introduction to grant writing, with focus on preparing applications for National Student Research Award. Discussion of requirements of various extramural and specialty organization funding sources, and evaluation criteria identified. Role of external funding to facilitate doctoral and postdoctoral research, research activities, and professional development. S/U grading.

M298. Interdisciplinary Response to Infectious Disease Emergencies: Nursing Perspective. (4) Lecture, three hours; discussion, one hour. Designed to instill in professional students ideas of common emergency health problems and coordinated response, with specific attention to bioterrorism. Examination of tools to help students prevent, detect, and intervene in infectious disease emergencies. Interdisciplinary sessions also attended by students in Schools of Dentistry, Medicine, and Public Health during weeks two through five. Letter grading.

299A. Nursing Research Seminar. (2) Seminar, two hours. Seminar to assist students who are beginning careers in scientific research to understand issues of responsible conduct of research and protection of research subjects. S/U grading.

299B-299C. Nursing Research/Laboratory Experiences. (4-4) Seminar/discussion, one hour; research/laboratory, three hours. Requisites: courses 202, 206. Seminars and research/laboratory-based experiences to assist students to prepare for careers as scientists, with focus on research methodology and mentorship. S/U grading.

299D. Nursing Education Seminar. (2) Seminar, two hours; discussion, one to two hours. Requisites: courses 206, 207, 208, 220. Seminar to assist students to prepare for careers in academic settings, with focus on teaching. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

418A. Nursing Administration Practicum. (3 or 4)

Clinic practicum, eight or 11 hours; clinical conference, one hour. Requisites: courses 219A, 219B. Synthesis, evaluation, and practical application of organizational theory in practice setting, with emphasis on content presented in course 218A, including organizational structure, processes, and outcomes. Letter grading.

418B. Nursing Administration Practicum. (3 or 4)

Clinic practicum, eight or 11 hours; clinical conference, one hour. Requisites: courses 218A, 418A. Experience in organizational setting for synthesizing content from course 218B, including strategic planning and management, care delivery systems, resource management, decision making, management information systems, professional practice, and meeting accreditation and legal standards. Letter grading.

418C. Nursing Administration Practicum. (3 or 4)

Clinic practicum, eight or 11 hours; clinical conference, one hour. Requisites: courses 218B, 418B. Experience in organizational setting for synthesizing and evaluating content from course 218C, including processes of project management, organizational communication, governance, development and change, diverse relationships within organization, risk management, liability, and ethics of administration decision making. Letter grading.

418D. Nursing Administration Residency. (12)

Clinic practicum, 33 hours; clinical conference, one hour. Requisites: courses 218C, 418C. Experience in organization setting as students assume leadership role in planning, managing, and evaluating administrative projects. Synthesizing of content from course 218D, including assessing community healthcare needs, marketing, media, and political action and healthcare policy. Letter grading.

429A. Family Nurse Practitioner Practicum I. (4)

Clinic practicum, 12 hours. Requisites: courses 200, 440. First of five clinical practica designed to prepare family nurse practitioners with knowledge, skills, and competencies necessary to assume role of primary healthcare provider for families and individual patients across lifespan. Use of family-focused framework of care for those who experience common acute and chronic illness, developmental transitions, and health problems. Emphasis on health promotion, maintenance, and risk reduction interventions across wide range of diverse populations. Focus on context of community, cultural awareness, and practice in interdisciplinary teams. Letter grading.

429B. Family Nurse Practitioner Practicum II. (4)

Clinic practicum, 12 hours. Requisite: course 429A. Second of five clinical practica designed to prepare family nurse practitioners with knowledge, skills, and competencies necessary to assume role of primary healthcare provider for families and individual patients across lifespan. Use of family-focused framework of care for those who experience common acute and chronic illness, disability, and developmental transitions. Emphasis on health promotion, maintenance, and risk reduction interventions across wide range of diverse populations. Preparation in variety of clinical settings to implement evidence-based practice guidelines and to critically analyze and adapt healthcare interventions based on individualized assessments of individual/family needs. Focus on context of community, cultural awareness, and practice in interdisciplinary teams. Letter grading.

429C-429D-429E. Family Nurse Practitioner Practicum III, IV, V. (6-6-9)

Clinic practicum, 18 hours (courses 429C, 429D) and 27 hours (course 429E). Requisite for course 429C: course 429B; for 429D: course 429C; for 429E: course 429D. Third, fourth, and fifth of five clinical practica designed to prepare family nurse practitioners with knowledge, skills, and competencies necessary to assume role of primary healthcare provider for families and individual patients across lifespan. Use of family-focused framework of care for those who experience common acute and chronic illness, disability, and developmental transitions. Preparation in variety of clinical settings to implement evidence-based practice guidelines and to critically analyze and adapt healthcare interventions based on individualized assessments of individual/

family needs. Focus on context of community, cultural awareness, and practice in interdisciplinary teams. Letter grading.

438A. Advanced Practice Nursing in Care of Children: Wellness Care. (4)

Clinic practicum, 12 hours. Corequisite: course 238A. Development of expanded skills in comprehensive assessment and provision of anticipatory guidance for children and families to promote child wellness. Application of theory and research in provision of wellness care throughout childhood years. Letter grading.

438B. Advanced Practice Nursing in Care of Children: Management of Common Illnesses. (6)

Clinic practicum, 18 hours. Corequisite: course 238B. Development of expanded skills in comprehensive assessment and management of common childhood illnesses and problems; students continue to gain skills in promoting child wellness. Application of theory and research in care of common illnesses throughout childhood years. Letter grading.

438C. Advanced Practice Nursing in Care of Children: Management of Complex Health Problems. (6)

Clinic practicum, 18 hours. Corequisite: course 238C. Development of expanded skills in assessment and ambulatory management of complex acute and chronic childhood illnesses. Application of theory and research in provision of care for complex acute and chronic illnesses throughout childhood years. Letter grading.

438D. Pediatric Primary Care: Residency. (8)

Clinic practicum, 24 hours. Requisites: courses 238C, 438C. Students assume primary responsibility for planning, managing, and evaluating care of children. Research, theory, and clinical knowledge analyzed, integrated, and applied to care of children and families with actual or potential health problems. Letter grading.

439A. Adult/Gerontology Advanced Practice Practicum I. (4)

Clinic practicum, 12 hours. Requisites: courses 224, 231. Corequisite: course 239A. Advanced practice nursing in adult/gerontology. Beginning-level assessment and therapeutic interventions for health problems in selected populations. Developmental, health promotion, and maintenance needs of clients in relation to family, social, and cultural structures. Letter grading.

439B. Advanced Practice Nursing: Clinical Practicum. (6)

Clinic practicum, 18 hours. Corequisite: course 239B. Continuation of course 439A for advanced practice nurses, with emphasis on nursing management of acute and chronic health problems in selected populations. Developmental needs of clients in relation to family, social, and cultural structures. Letter grading.

439C. Advanced Practice Nursing: Clinical Practicum. (6)

Clinic practicum, 18 hours. Corequisite: course 239C. Third clinical practicum course for advanced practice nurses, with focus on nursing assessment and intervention in common illness-associated symptoms and complex patient/family presentations. Analysis, evaluation, and integration of current theory and research to provide basis for development of interventions and treatment for acute and chronic problems across lifespan. Letter grading.

439D. Advanced Practice Nursing: Residency. (8)

Clinic practicum, 24 hours. Requisites: courses 239C, 439C. Residency in advanced practice role where students assume primary responsibility for planning, managing, and evaluating care of clients in specialty setting. Emphasis on application and integration of theory, research, and clinical knowledge in advanced practice role. Letter grading.

440. Advanced Assessment and Clinical Diagnostic Practicum. (2)

Laboratory/clinic practicum, six hours. Practice foundations for advanced physical assessment and clinical diagnostic reasoning. Students conduct individualized patient- and symptom-focused assessments of health problems representative of diverse client populations. Emphasis on comprehensive and integrated critical analysis of symptom and focused history data, physical examination, selected laboratory data, and clinical diagnoses. Letter grading.

441. Neuropsychiatric Subspecialty Clinical Seminar. (1 to 2)

Clinical seminar, one hour; self-study, two hours. Requisites: courses 241F, 242F. Designed for advanced practice nurses in any nurse practitioner specialty. Neuropsychiatric assessment, treatment, and case presentations in selected populations with addictive, affective, and cognitive dysfunctions in relation to neurophysiology and pathology and to family, social, and cultural structures. S/U grading.

445. Advanced Practice Nursing: Clinical Nurse Specialty Practicum. (2 to 10)

Clinic practicum, six to 30 hours. Requisite: course 245. Practicum/residency in clinical nurse specialty role where students gain experience in expert clinical practice, consultation, education, leadership/change management, and research/research utilization. Emphasis on application and integration of theory, research, and clinical knowledge to goals of multidisciplinary healthcare systems. May be repeated for credit. Letter grading.

450. Advanced Practice Nursing: Clinical Elective Independent Study. (2 to 8)

Clinic practicum, eight hours. Clinical elective designed to enhance skills and competencies in student-selected advanced practice specialty or related practice dimension, with emphasis on application and integration of theory and evidence-based practice knowledge. S/U grading.

461. Mental Health Nursing. (5)

Lecture, three hours; clinical, six hours. Requisites: courses 225A, 230B, C260. Corequisite: course 225B. Knowledge and skill assessment to promote mental health of individuals and communities. Exploration of research underlying assessment, diagnosis, and treatment of individuals with psychiatric disorders and pharmacotherapeutic and psychological treatment of individuals. Application of theory in clinical practice involves interpretation of assessment and diagnostic data for purpose of planning, implementing, and evaluating course of care for patients, both as individuals and cohorts. Beginning-level assessment, health maintenance, and management of symptomatology across lifespan. Letter grading.

462. Maternity Nursing. (5)

Lecture, three hours; clinical, six hours. Requisite: course 461. Pathophysiological and psychosocial aspects of assessment and management for selected acute and emergent problems of maternity-newborn patients, with emphasis on social, cultural, and developmental influences and integration of basic knowledge of pathophysiology, diagnostics, pharmacology, therapeutic interventions, and communication concepts as applied to care of childbearing families. Application of theory, nursing process, evidence-based practice, and problem solving in clinical setting, interpretation of assessment and diagnostic data for purpose of planning, implementing, and evaluating care for maternity and newborn patients, both as individuals and cohorts. Assessment, health maintenance, and management of symptomatology among childbearing women and newborns. Letter grading.

463. Medical-Surgical/Gerontology I. (9)

Lecture, five hours; clinical, 12 hours. Requisite: course 461. Pathophysiological and psychosocial aspects of assessment and management for selected common acute and chronic problems of adult patients/clients, with focus on basic assessment, health history, and diagnostic reasoning skills and emphasis on social, cultural, and developmental influences. Integration of basic knowledge of pathophysiology, stress and adaptation, therapeutic interventions, and communication concepts as applied to care of clients and their families across adult lifespan. Supervised practicum experience in medical-surgical/geriatric clinical units, with focus on application of theory in interpretation of assessment and diagnostic data for purpose of planning, implementing, and evaluating course of care for patients, both as individuals and cohorts. Beginning-level assessment, health maintenance, and management of symptoms across lifespan. Letter grading.

464. Clinical Internship: Pediatrics. (2)

Clinic, six hours. Requisites: courses 262A, 262B, 462, 463. Corequisite: course 265B. Supervised practicum experience within multidimensional team on pediatric clinical units, with focus on application of theory in clinical setting and interpretation of assessment and

diagnostic data for purpose of planning, implementing, and evaluating course of care for infants, children, and adolescents, both as individuals and cohorts. Beginning-level assessment, health maintenance, and management of symptomatology among infants, children, and adolescents. S/U grading.

465. Clinical Internship: Medical-Surgical/Gerontology II. (4) Clinical, 12 hours. Requisites: courses 262A, 262B, 462, 463. Corequisite: course 265A. Supervised practicum experience within setting of multidimensional team on medical-surgical/geriatric clinical units, with focus on application of theory in clinical setting and interpretation of assessment and diagnostic data for purpose of planning, implementing, and evaluating course of care for patients, both as individuals and cohorts. Beginning-level assessment, health maintenance, and management of symptomatology across lifespan. S/U grading.

467. Clinical Internship: Integration. (12) Clinical, 36 hours. Requisites: courses 171C, 171D, 265A, 265B, 464, 465. Supervised practicum experience within setting of multidimensional team, with focus on application of theory in clinical interpretation of assessment and diagnostic data for purpose of planning, implementing, and evaluating course of care for patients, both as individuals and cohorts. Advanced-level assessment, health maintenance, and management of symptomatology across lifespan. S/U grading.

495. Nursing Education Practicum. (2) Seminar, six hours. Supervised student teaching internship in preparation for academic roles. In-depth opportunity to gain skills in role of nurse educator within university setting, including application of instructional strategies and evaluation methods. S/U grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA assistant dean and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. No more than 8 units may be applied toward M.S.N. degree minimum total course requirement; may not be applied toward minimum graduate course requirement. S/U grading.

596. Directed Individual Study or Research. (2 to 12) Tutorial, to be arranged. Opportunity for individual graduate nursing students to pursue special studies or research interests. May be repeated for credit, but only 4 units may be applied toward graduate degree requirements. S/U grading.

597. Individual Study for Comprehensive Examination. (4 to 8) Tutorial, to be arranged. Opportunity for individual graduate nursing students to prepare for comprehensive examination. May be repeated once for credit, but only 4 units may be applied toward M.S.N. degree requirements. S/U grading.

599. Research for and Preparation of Ph.D. Dissertation. (2 to 12) Tutorial, to be arranged. Individualized faculty supervision of Ph.D. dissertation research by student's chair. May be repeated for credit, but only 8 units may be applied toward Ph.D. degree requirements. S/U grading.

OBSTETRICS AND GYNECOLOGY

David Geffen School of Medicine

UCLA
27-117A Center for the Health Sciences
Box 951740
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(310) 206-6575
<http://obgyn.ucla.edu>

Chairs

Gautam A. Chaudhuri, M.D., Ph.D., *Executive Chair*
Andrea J. Rapkin, M.D., *Executive Vice Chair*

Brian J. Koos, M.D., D.Phil., *Vice Chair, Academic Affairs*

Michael T. Johnson, M.D., *Vice Chair, Clinical Affairs*

Christine H. Holschneider, M.D., *Vice Chair, Olive View-UCLA*

Ricardo Azziz, M.D., *Vice Chair, Cedars-Sinai*

Michael G. Ross, M.D., *Vice Chair, Harbor-UCLA*

Scope and Objectives

The medical student program in obstetrics and gynecology is designed to provide firm background in the essentials of women's health. Through a combination of didactic instruction and supervised clinical experience, students acquire the relevant clinical skills of history taking and physical examination and learn reproductive physiology from infancy to the postmenopausal period; antepartum, intrapartum, and postpartum obstetric care; and recognition and management of various gynecologic disorders. Third-year students work in ambulatory clinics and on inpatient services during a six-week core clerkship. Greater depth of experience is provided by elective clerkships during the fourth year that emphasize subspecialties such as maternal/fetal medicine, reproductive endocrinology and infertility, gynecologic oncology, and reproductive health.

For further details on the Department of Obstetrics and Gynecology, see <http://obgyn.ucla.edu>.

Obstetrics and Gynecology Upper Division Course

199. Directed Research in Obstetrics and Gynecology. (2 to 8) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

OPHTHALMOLOGY

David Geffen School of Medicine

UCLA
2-142 Jules Stein Eye Institute
Box 957000
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(310) 825-5053
<http://www.jsei.org>

Chairs

Bartly J. Mondino, M.D. (*Bradley R. Straatsma, M.D., Endowed Professor of Ophthalmology*), *Chair*
Sherwin J. Isenberg, M.D. (*Laraine and David Gerber Professor of Ophthalmology*), *Vice Chair, Harbor-UCLA*

Arthur L. Rosenbaum, M.D. (*Brindell and Milton Gottlieb Professor of Pediatric Ophthalmology*), *Vice Chair*

Scope and Objectives

Ophthalmology is the medical science that encompasses knowledge concerning the eyes and the visual system. Derived from many basic and clinical fields, this knowledge must be synthesized by the physician and applied to the

prevention, diagnosis, medical management, and surgical therapy of ocular disease.

In response to the steadily increasing incidence and growing importance of ocular disorders, the Department of Ophthalmology and the Jules Stein Eye Institute (including the Doris Stein Eye Research Center) are closely coordinated to form a comprehensive center for research in the sciences related to vision, for the care of patients with disease of the eyes and related structures, and for education in the broad field of ophthalmology.

The Department of Ophthalmology provides instruction to medical students during the second, third, and fourth years. Through lectures, demonstrations, discussions, and the opportunity to observe patients and review data on cases with a variety of ocular conditions, students gain knowledge and experience in ophthalmology.

For further details on the Department of Ophthalmology and a listing of the courses offered, see <http://www.jsei.org/education/>.

Ophthalmology

Upper Division Course

199. Directed Research in Ophthalmology. (2 to 8) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

ORAL BIOLOGY

School of Dentistry

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<http://uclasod.dent.ucla.edu/admissions/mastersphd/index.html>

Cun-Yu Wang, Ph.D., D.D.S., *Chair*
Fariba S. Younai, D.D.S., *Vice Chair*

Professors

Carol A. Bibb, Ph.D., D.D.S.
Francesco Chiapelli, Ph.D.
Robert H. Chiu, Ph.D.
Susan Kinder Haake, Ph.D., D.M.D.
Anahid Jewett, M.P.H., Ph.D.
Diana Messadi, D.D.S., Ph.D.
Ichiro Nishimura, D.D.S., D.M.D., D.M.Sc.
Wenyuan Shi, Ph.D.
Igor Spigelman, Ph.D.
Sotirios Tetradis, Ph.D., D.D.S.
Lawrence E. Wolinsky, D.M.D., Ph.D.
Cun-Yu Wang, Ph.D., D.D.S.
David T.W. Wong, D.M.D., D.M.Sc.

Professors Emeriti

George W. Bernard, D.D.S., Ph.D.
Douglas Junge, Ph.D.
Bernard G. Sarnat, M.D., M.S., D.D.S.

Associate Professors

Mo K. Kang, Ph.D., D.D.S., M.S.

Kenneth T. Miyasaki, D.D.S., M.S., Ph.D.

Assistant Professors

Shen Hu, Ph.D.
Reuben Kim, Ph.D., D.D.S.
Clarice Law, D.M.D., M.S.
Jeanne Nervina, Ph.D., D.M.D., M.S.

Adjunct Professors

Carl A. Maida, Ph.D., M.A.
Robert Merrill, D.D.S., M.S.

Adjunct Associate Professors

Yong Kim, Ph.D.
Ki-Hyuk Shin, Ph.D., M.S.
Craig D. Woods, D.D.S.

Adjunct Assistant Professors

Renate Lux, Ph.D.
Ting-Ting Wu, Ph.D.

Professor of Clinical Dentistry

Fariba S. Younai, D.D.S.

Scope and Objectives

Oral biology is the area of knowledge that deals with the development, structure, and function of the oral tissues and their interrelationships with other organ systems in normal and disease states. It is a multidisciplinary field that includes cell biology, morphology, molecular biology, biochemistry, neuroscience, immunology, microbiology, and virology. The objective of the graduate program is to provide students with a sound foundation in these areas in order to pursue an academic or research career.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Section of Oral Biology in the School of Dentistry offers Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Oral Biology. A combined D.D.S./Oral Biology M.S. or Ph.D. or advanced certificate training/Oral Biology M.S. or Ph.D. is also offered.

Oral Biology

Graduate Courses

201A, 201C. Advanced Oral Biology. (3-3) Lecture, three hours. S/U or letter grading:

201A. Ontogenesis. (3) Lecture, three hours. Evolutionary perspective of cellular development from simple molecules that were formed during first billion years of Earth to development of cells, tissues, and organs of invertebrates and vertebrates. Development of vertebrate feeding apparatus from comparative anatomical and physiological point of view, followed by embryogenesis of orofacial and dental structures of humans. S/U or letter grading.

201C. Pathobiology. (3) Lecture, three hours. Molecular basis for pathogenic processes in tissues of oral cavity. Topics include microbially mediated demineralization of hard tissues, soft tissue infections, carcinogenesis, colonization of mucosal substrates by opportunists, etc. S/U or letter grading.

203. Oral Embryology and Histology. (4) (Formerly numbered M203.) Lecture, four hours. Lectures and laboratory instruction in development and histological structure of facial region and oral and peri-oral organs and tissues. Letter grading.

M204. Mechanisms and Relief of Pain. (2) (Same as Neuroscience M233.) Lecture, two hours. Advanced treatment of neuroanatomical, neurophysiological, and biochemical bases of pain perception. Topics include classical pain theories, pain receptors and pathways, endogenous mechanisms of pain modulation, and pharmacological basis for treatment of pain disorders. Letter grading.

205A. Methodology in Research Design and Data Analysis. (2) (Formerly numbered 205.) Lecture, two hours. Designed for graduate oral biology students. Integration of didactic lectures in descriptive and inferential statistics and in research design (emphasis on experimental design), presentations of statistical software, and open discussion of specific needs of oral biology students when they design their research. Letter grading.

205B. Methodology in Evidence-Based Dentistry. (2) Seminar, two hours. Designed for oral biology graduate students. Fundamentals of evidence-based research in dentistry and its implications for practice. Letter grading.

205C. Advanced Seminar: Comparative Effectiveness and Evidence-Based Research. (2) Seminar, one hour; discussion, one hour. Prerequisites: courses 205A, 205B (may be taken concurrently). Hands-on experience in process of systematic review, as shared mechanism in comparative effectiveness and evidence-based research. Specialized topics include level and quality of evidence assessments, acceptable sampling analysis, meta-analysis and meta-regression, and Bayesian-derived decision making following utility versus logic model. Students work on examples of their choice and interest in oral biology, medicine, and orthodontics. Letter grading.

206. Current Topics in Oral Immunology. (2) Lecture, two hours. Preparation: basic immunology. Discussion and analysis of current research dealing with immunological issues related to oral health, including HIV, opportunistic oral infections, periodontal pathology, oral immunopathology, caries immunology, endodontic immunology, etc. Letter grading.

208. Genomics and Proteomics in Oral Biology Research. (2) Lecture, one hour; discussion, one hour. Introduction to fundamentals and technical aspects of genomics and proteomics and analysis of data derived therefrom. Discussion of implications and applications of genomics and proteomics in diagnostic protocols such as salivary diagnostics. Letter grading.

209. Scientific Ethics. (2) Lecture, one hour; laboratory, one hour. Required course in scientific ethics for graduate students in Oral Biology M.S. and Ph.D. programs and for NRSA trainees in School of Dentistry. Letter grading.

211. Biology of Temporomandibular Joint. (2) Lecture, two hours. Anatomy, histology, physiology, and biomechanics of temporomandibular joint (TMJ) and related musculature. Pain mechanisms, sensorimotor integration, and motor mechanisms in TMJ function, and current methods of TMJ imaging. S/U or letter grading.

212. Proseminar: Oral Biology Research. (2) Seminar, one hour; discussion, one hour. Introductory course for graduate M.S. students. Guest seminars on topics of research in oral biology (pain pathways, immunology, bone biology, microbiology, cancer, and salivary genomics), followed by discussions led by course chair. Letter grading.

214. Current Research in Osteoimmunology. (2) Seminar, one hour; discussion, one hour. Exploration of oral bone biology and immunology and how both systems talk to each other. Topics include immune modulation of bone metabolism, osteoblastic niche for hematopoietic progenitors, adult bone marrow stem cell changes, and osteoimmunology in at-risk populations. Letter grading.

215A. Fundamentals of Immunology. (2) (Formerly numbered 215.) Lecture, two hours. Basic cellular and molecular mechanisms involved in responses mediated by immune effectors, with emphasis on immunopathology involved in autoimmunity, cancer, and immunodeficiency syndromes. Letter grading.

215B. Current Advanced Research Topics in Immunology. (2) Seminar, one hour; discussion, one hour. Overview of rapidly changing discoveries in very important field of immunology. Directed and student-led discussions of current cutting-edge research developments in immunology. Letter grading.

226. Craniofacial Growth and Development. (2) Lecture, two hours. Preparation: strong background in histology and embryology. Students acquire, from scientific literature discussed in lecture/seminar format, advanced knowledge of relevant aspects of human biology as they apply to classic and current concepts of principles governing growth and development of craniofacial region. Students required to present seminars on assigned topics that aid their understanding and analysis of course content that has application to their specific and professional fields. Letter grading.

227. Dental Embryology and Histology. (2) Lecture, two hours. Description and interpretation of important stages in development of orofacial apparatus and histological features of its component tissues. Critique of scientific literature relevant to course content and analysis of current state of knowledge about selected features of orofacial apparatus that are of significance to clinical dental specialists. S/U or letter grading.

228. Dental Pharmacology and Therapeutics. (2) Lecture, three hours. Survey of pharmacology, with particular emphasis on how drugs interact with dentistry. General principles of drug action and drug effects on autonomic and central nervous systems. S/U or letter grading.

229A. Culture, Ethnicity, and Health: Implications for Oral Biology and Medicine. (2) Seminar, one hour; discussion, one hour. Examination of sociocultural, biological, and linguistic anthropology to understand factors that influence health and well-being, experience and distribution of illness, prevention and treatment of sickness, healing processes, social relations of therapy management, and cultural importance and utilization of pluralistic medical systems. Theory, perspectives, and methods from clinical medicine, public health, epidemiology, demography, and social sciences. Letter grading.

229B. Anthropological Perspectives on Global Health: Implications for Oral Biology and Medicine. (2) Seminar, one hour; discussion, one hour. What factors determine health, illness, and disease in global context, including political ecology of infectious diseases, child health issues, women's health and reproductive health, global trade in legal and illegal drugs, demography and health transition, structural adjustment, problems associated with globalization of pharmaceutical industry; antibiotic resistance, and globalization and health equity. Letter grading.

234. Seminar: Developmental Neuroendocrinology. (2) (Formerly numbered M234.) Seminar, two hours. Designed for graduate students. Psychological and physiological processes intertwine, and one important aspect of psychoneuroimmunological research is characterization of mechanisms that underlie these interactions. Examination of current literature on neuroimmune interaction from developmental perspective. S/U or letter grading.

M256. Interdisciplinary Response to Infectious Disease Emergencies: Dentistry Perspective. (4) Lecture, three hours; discussion, one hour. Designed to instill in professional students ideas of common emergency health problems and coordinated response, with specific attention to bioterrorism. Examination of tools to help students prevent, detect, and intervene in infectious disease emergencies. Interdisciplinary sessions also attended by students in Schools of Medicine, Nursing, and Public Health during weeks two through five. Letter grading.

260. Oral Biology Seminar. (.5) Seminar, one hour. Discussion of peer-reviewed literature readings in basic sciences related to oral biology. S/U grading.

273. Research in Clinical Immunology and Lymphology. (2) Lecture, one hour; discussion, one hour. Forum for discussion of cutting-edge topics in immunology and lymphology from clinical perspective. Emphasis on immune surveillance and lymphatic drainage of oral pathologies associated with AIDS and other diseases. Letter grading.

275. Molecular and Cell Biology for Oral Biology Graduate Students. (3) Lecture, two hours; literature review, one hour. Advanced course on prokaryotic and eukaryotic molecular and cell biology, with emphasis on applications in dental research. Letter grading.

596. Directed Individual Study or Research. (2 to 8) Tutorial, to be arranged. S/U or letter grading.

597. Preparation for Ph.D. Qualifying Examinations. (4 to 8) Tutorial, to be arranged. S/U grading.

598. Thesis Research and Preparation. (2 to 8) Tutorial, to be arranged. S/U grading.

599. Research for and Preparation of Ph.D. Dissertation. (4 to 8) Tutorial, to be arranged. S/U grading.

ORTHOPAEDIC SURGERY

David Geffen School of Medicine

UCLA
8236 Reagan UCLA Medical Center
Box 957430
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(310) 206-2567
fax: (310) 267-0369
<http://ortho.ucla.edu>

Chairs

Robert A. Pedowitz, M.D., Ph.D., *Chair*
John S. Adams, M.D., *Vice Chair of Research*

Scope and Objectives

The medical student program in orthopaedic surgery is designed to provide experience in understanding the diagnosis and management of disorders of the musculoskeletal system. Through a combination of didactic instruction and supervised clinical experience, students acquire the clinical skills of history taking and physical examination of the musculoskeletal system. Diagnosis and orthopaedic management of bone and soft tissue trauma, skeletal development defects, tumor, spinal disorders, hand and foot disorders, and arthritis are primary objectives. Third-year students work in ambulatory clinics and on inpatient services during their core surgical clerkship. Fourth-year electives provide the opportunity for in-depth experience on rotations at the Reagan UCLA Medical Center and affiliated institutions and emphasize subspecialties such as joint replacement, sports medicine, orthopaedic oncology, metabolic bone disorders, hand and foot surgery, spinal surgery, and pediatric orthopaedics.

For further details on the Department of Orthopaedic Surgery and a listing of the courses offered, contact the Education Office at (310) 206-2567 or see <http://ortho.ucla.edu>.

Orthopaedic Surgery Upper Division Course

199. Directed Research in Orthopaedic Surgery. (2 to 8) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

PATHOLOGY AND LABORATORY MEDICINE

David Geffen School of Medicine

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<http://www.pathology.ucla.edu>

Jonathan Braun, M.D., Ph.D., *Chair*

Professors

Linda G. Baum, M.D., Ph.D.
Judith A. Berliner, Ph.D., *in Residence*
Sunita M. Bhuta, M.D.
Scott W. Binder, M.D. (*Pritzker Family Endowed Term Professor of Pathology*)
Jonathan Braun, M.D., Ph.D.
Anthony W. Butch, Ph.D.
Michael J. Cecka, Ph.D.
Alistair J. Cochran, M.D.
Galen R. Cortina, M.D., Ph.D.
Gay M. Crooks, M.D.
Kenneth A. Dorshkind, Ph.D.
Thomas A. Drake, M.D., *in Residence*
Steven M. Dubinett, M.D.
Rita B. Effros, Ph.D., *in Residence*
Michael C. Fishbein, M.D. (*Frances and Albert Piansky Professor of Anatomy*)
Tomas Ganz, M.D., Ph.D.
Richard A. Gattii, M.D., *in Residence (Rebecca Smith Endowed Professor of A-T Research)*
David W. Gjertson, Ph.D.
Ben J. Glasgow, M.D. (*Wasserman Professor of Ophthalmology*)
Wayne W. Grody, M.D., Ph.D.
Oliver Hankinson, Ph.D.
Sharon L. Hirschowitz, M.D.
Jiaoti Huang, M.D., Ph.D.
Jerzy W. Kupiec-Weglinski, M.D., Ph.D., *in Residence (Joan S. and Ralph N. Goldwyn Professor of Immunobiology and Transplantation)*
Charles R. Lassman, M.D., Ph.D.
Stephen Lee, M.D.
Xinmin Li, Ph.D.
Paul Mischel, M.D. (*Lya and Harrison Latta Endowed Professor of Pathology*)
Scott D. Nelson, M.D.
Jian Yu Rao, M.D.
Nagesh P. Rao, Ph.D.
Elaine F. Reed, Ph.D., *in Residence*
Jonathan W. Said, M.D.
Kathleen M. Sakamoto, M.D.
Robert H. Schiestl, Ph.D.
M. Elena Stark, M.D., Ph.D.
Michael A. Teitell, M.D., Ph.D.
James G. Tidball, Ph.D.
Peter J. Tontonoz, M.D., Ph.D.
Harry V. Vinters, M.D. (*Daljit S. and Elaine Sarkaria Endowed Professor of Diagnostic Medicine*)
Elizabeth A. Wagar, M.D.
Anna Wu Work, Ph.D.
William H. Yong, M.D.

Professors Emeriti

Anthony Adinoffi, Ph.D.
Marcel A. Baluda, Ph.D.
David A. Bruckner, Sc.D.
Carmine D. Clemente, Ph.D.
Walter F. Coulson, M.D.
Donald E. Paglia, M.D.
Lawrence D. Petz, M.D.
David D. Porter, M.D.
George S. Smith, M.D.
Julien L. Van Lancker, M.D.
M. Anthony Verity, M.D.

Associate Professors

Sophia K. Apple, M.D.
Nicole A. Dawson, M.D.
Sarah M. Dry, M.D.
Kathleen A. Kelly, Ph.D., *in Residence*
Benhur Lee, M.D.
Michael Lewinski, Ph.D.
Xin Liu, M.D., Ph.D.
Raja Rajalingham, Ph.D.
Sophie X. Song, M.D.
Alyssa F. Ziman, M.D.

Assistant Professors

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Steven J. Bensinger, V.M.D., Ph.D.,
Marjorie Bonhomme, Ph.D.
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David W. Dawson, M.D., Ph.D.
Joshua L. Deignan, Ph.D.
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Gretchen Galliano, M.D.
Steven D. Hart, M.D.
Dean Harvey, M.D.
Joseph D. Hillman, M.D.
Negar M. Khanlou, M.D.
Chi K. Lai, M.D.
Kangmo Lu, M.D., Ph.D.
Qun Lu, M.D.
Kimberly A. Mistlick, M.D.
Neda A. Moatamed, M.D.
Sheeja T. Pullarkat, M.D.
Fabiola Quintero-Rivera, M.D.
Dinesh S. Rao, M.D., Ph.D.
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Chandra N. Smart, M.D.
Peggy S. Sullivan, M.D.
George V. Thomas, M.D.
Gregory S. Van Dyke, M.D., Ph.D.
William D. Wallace, M.D.
Jamie C. Wikenheiser, Ph.D.
Shan Yuan, M.D.
Qui heng Zhang, Ph.D.

Adjunct Professors

David S. Chia, Ph.D.
Shaleen Metten, Ph.D.
Nora Rozengurt, Ph.D.
Robert B. Trelease, Ph.D.

Adjunct Associate Professors

Lee Goodglick, Ph.D.
Joseph M. Miller, Ph.D.
David B. Seligson, M.D.

Adjunct Assistant Professors

Justin T. Schaefer, Ph.D.
Yin Sun, Ph.D.
Madhuri Wadehra, Ph.D.
Johathan J. Wisco, Ph.D.
Bo Wei, M.D., Ph.D.

Professor of Clinical Pathology

Cynthia C. Nast, M.D.

Scope and Objectives

Pathology is the branch of medicine concerned with the causes and development of disease. The goal of the cellular and molecular pathology (CMP) graduate program is to provide students with the knowledge to integrate findings at the

molecular, cellular, and systemic levels to understand the causes and progression of disease.

Coursework is designed so that students gain an in-depth knowledge of cell and molecular biology, genetics, and disease mechanisms. Didactic instruction is complemented by participation in seminars and training in the design and execution of original laboratory research. As a result, graduates obtain the expertise to translate and answer questions defined in the clinical area to the laboratory bench and vice versa. See <http://www.pathnet.medsch.ucla.edu/educ/cmp/home.php> for more information.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Pathology and Laboratory Medicine offers Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Cellular and Molecular Pathology.

Pathology and Laboratory Medicine

Upper Division Course

199. Directed Research in Pathology. (2 to 4) Tutorial, 10 hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

207. Gross and Developmental Anatomy for Graduate Students. (12) Lecture/laboratory, three four-hour sessions (16-week semester). Gross anatomy, embryology, and radiological anatomy of human body as taught by lectures, demonstrations, and dissections. Trunk and extremities; head and neck. Letter grading.

M215. Interdepartmental Course: Tropical Medicine. (2) (Same as Medicine M215 and Pediatrics M215.) Lecture, two and one-half hours. Preparation: basic courses in microbiology and parasitology of infectious diseases in School of Medicine or Public Health. Study of current knowledge about diseases prevalent in tropical areas of the world. Major emphasis on infectious diseases, with coverage of problems in nutrition and exotic noninfectious diseases. Syllabus supplements topics covered in classroom. S/U grading.

M229. Molecular Mechanisms of Host/Pathogen Interaction. (4) (Same as Microbiology M229.) Lecture, two hours; discussion, two hours. Requisite: Biological Chemistry CM253. Molecular mechanisms of microbial interactions with eukaryotic host cells that result in disease or pathogen survival. Topics include pathogenesis of common viruses, bacteria, fungi, and parasites, basis of toxin-mediated cellular damage, and immune suppression of microbial tissue damage. Letter grading.

M237. Cellular and Molecular Basis of Disease. (4) (Same as Biological Chemistry M237.) Lecture, two hours; discussion, two hours. Preparation: one course each in molecular biology, cell biology, and biological chemistry. Discussion of key issues in disease mechanisms, with emphasis on experiments

leading to understanding of these mechanisms. Identification of important questions still remaining unanswered. S/U or letter grading.

238. Histology and Pathology for Graduate Students. (2) Laboratory, two hours. Designed for UCLA ACCESS or Cellular and Molecular Pathology Ph.D. students. Basic introductory knowledge of normal tissue, pathologic processes, and animal models as observed by light microscopy. Letter grading.

240. Transplantation Immunology from Benchside to Bedside. (4) Lecture, three hours; laboratory, one hour. Preparation: knowledge of basic immunology. Limited to graduate students. New developments in organ transplantation, updates on basic science of immune mechanisms, integration of basic science principles with clinical practice. Letter grading.

M255. Mapping and Mining Human Genome. (3) (Formerly numbered 255.) (Same as Human Genetics M255.) Lecture, three hours. Basic molecular genetic and cytogenetic techniques of gene mapping. Selected regions of human genomic map scrutinized in detail, particularly gene families and clusters of genes that have remained linked from mouse to human. Discussion of localizations of disease genes. S/U or letter grading.

256. Seminar: Viral Oncology. (2) Seminar, two hours. Advanced research seminar designed to consider current developments in field. Selection of current subjects and publications dealing with tumor viruses, oncogenesis, development, and cellular regulation. S/U or letter grading.

M257. Introduction to Toxicology. (4) (Same as Pharmacology M257.) Requisite: Pharmacology M241. Biochemical and systemic toxicology, basic mechanisms of toxicology, and interaction of toxic agents with specific organ systems.

M258. Pathologic Changes in Toxicology. (4) (Same as Pharmacology M258.) Designed to give students experience in learning normal histology of tissues which are major targets of toxin and the range of pathologic changes that occur in these tissues (liver, bladder, lung, kidney, nervous system, and vascular system).

260. Immunopathology. (4) Lecture, two hours; discussion, one hour; laboratory, one hour. Requisite: Microbiology 261. Advanced information for graduate and advanced undergraduate students regarding immune system anatomy, lymphocytic development, acute and chronic inflammation, hypersensitivity, and autoimmunity. Letter grading.

270. Basic and Clinical Aspects of Developmental Hematology. (4) Lecture, two hours. Graduate- and postgraduate-level course that covers broad range of topics in both basic and clinical aspects of developmental hematology. Pediatric hematologic disorders provide important paradigm to study other developmental systems. Subjects include hematopoiesis, basic stem cell biology, angiogenesis, alternative models to study developmental hematology (zebrafish and *Drosophila*), basic physiology of normal and abnormal red cells, platelets, and white cells, leukemogenesis and novel therapeutics to treat leukemia, basic and clinical stem cell transplantation, state-of-the-art methods in developmental hematology (genomics, proteomics, and gene therapy, design of clinical trials, and biomathematical modeling and statistics in developmental hematology. Letter grading.

M272. Stem Cell Biology and Regenerative Medicine. (4) (Same as Molecular, Cell, and Developmental Biology M272.) Lecture, two hours; discussion, two hours. Designed for graduate students. Presentation of current knowledge of embryonic and adult stem cells and factors that regulate their growth and development. Major emphasis on how advances in cell and molecular biology and tissue engineering can be applied to use of stem cells in regenerative medicine. Bioethical and legal issues related to stem cell research. S/U or letter grading.

294. Basic Concepts in Oncology. (4) Lecture, three hours. Requisites: Biological Chemistry CM253, CM267A. Fundamental biological, genetic, and mo-

lecular process involved in genesis and growth of cancer cells and diagnosis, characterization, and treatment of cancer. Letter grading.

296. Research Topics in Pathology. (1 to 2) Research group meeting, one to two hours. Limited to departmental graduate students. Advanced study and analysis of current topics in pathology. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. S/U grading.

298A-298D. Current Research in Disease Mechanisms. (2 each) Lecture, 90 minutes. Preparation: one course each in molecular biology, cell biology, and biological chemistry. Designed for graduate experimental pathology students. Current research in disease mechanisms, with strong emphasis on experimental approach in pathology. Topics include genetic and metabolic disorders, thyroid disease, immunology, atherosclerosis, infectious diseases, and Alzheimer's disease. S/U or letter grading.

596. Directed Individual Study or Research. (4 to 12) Tutorial, to be arranged. Individual research with members of the staff or of other departments, the latter for purpose of supplementing programs available in department. S/U grading.

597. Preparation for Qualifying Examinations. (2 to 8) Tutorial, to be arranged. Preparation: one year of pathology coursework. Individual study for qualifying examinations. S/U grading.

599. Preparation of Ph.D. Dissertation. (2 to 12) Tutorial, to be arranged. Preparation: completion of qualifying examinations and majority of Ph.D. research. Writing and completion of dissertation. S/U grading.

PEDIATRICS

David Geffen School of Medicine

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Chairs

Edward R.B. McCabe, M.D., Ph.D. (*Mattel Executive Endowed Professor of Pediatrics*), *Executive Chair*
Sherin Devaskar, M.D., *Executive Vice Chair*
Rick E. Harrison, M.D., *Vice Chair, Clinical Affairs*
Thomas S. Klitzner, M.D., Ph.D. (*Jack H. Skirball Professor of Pediatric Cardiology*), *Vice Chair, Academic Affairs*
Lee T. Miller, M.D., *Vice Chair, Medical Education*
Kathleen M. Sakamoto, M.D., *Vice Chair, Translational Research*
Richard Findlay, M.D., *Interim Chair, Drew University*
Adam J. Jonas, M.D., *Chair, Harbor-UCLA*
Mohammed Malekzadeh, M.D., *Chair, Olive View-UCLA*
Charles F. Simmons, Jr., M.D., *Chair, Cedars-Sinai*

Scope and Objectives

The Department of Pediatrics encompasses four teaching hospitals: Mattel Children's Hospital UCLA and Olive View-UCLA, Harbor-UCLA, and Cedars-Sinai Medical Centers. The clinical program and teaching activities of the Reagan UCLA Medical Center are integrated with the Olive View-UCLA Medical Center. In the fundamentals of clinical medicine course, medical students receive detailed instruction in the techniques of the clinical examination of pediatric patients.

The required six-week clinical clerkship in pediatrics can be taken in any of four programs (Mattel/Olive View-UCLA, Cedars-Sinai, Harbor-UCLA, Kaiser Los Angeles). In-depth electives in the Department of Pediatrics are listed in the *School of Medicine Handbook of Clinical Courses*, as are the advanced clinical clerkships.

For further details on the Department of Pediatrics and a listing of the courses offered, see <http://www.pediatrics.medsch.ucla.edu>.

Pediatrics

Upper Division Course

199. Directed Research in Pediatrics. (2 to 8) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Course

M215. Interdepartmental Course: Tropical Medicine. (2) (Same as Medicine M215 and Pathology M215.) Lecture, two and one-half hours. Preparation: basic courses in microbiology and parasitology of infectious diseases in School of Medicine or Public Health. Study of current knowledge about diseases prevalent in tropical areas of the world. Major emphasis on infectious diseases, with coverage of problems in nutrition and exotic noninfectious diseases. Syllabus supplements topics covered in classroom. S/U grading.

PHARMACOLOGY

See Molecular and Medical Pharmacology

PHILOSOPHY

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Barbara Herman, Ph.D., *Co-Chair*
John P. Carriero, Ph.D., *Co-Chair*

Professors

Joseph Almog, D.Phil.
Tyler Burge, Ph.D.
John P. Carriero, Ph.D.
Brian P. Copenhaver, Ph.D. (*Steven F. and Christine L. Udvar-Hazy Professor*)
Barbara Herman, Ph.D. (*Gloria and Paul Griffin Professor of Philosophy*)
David B. Kaplan, Ph.D. (*Hans Reichenbach Professor of Scientific Philosophy*)
Gavin Lawrence, D.Phil.
Donald A. Martin, Ph.D.
Calvin G. Normore, Ph.D.
Terence D. Parsons, Ph.D.
Seana Shiffrin, D.Phil., J.D.

Professors Emeriti

Marilyn McCord Adams, Ph.D.
Robert Merrihew Adams, Ph.D.
Keith S. Donnellan, Ph.D.

Philippa R. Foot, M.A.
Herbert Morris, Ph.D.

Associate Professors

Mark D. Greenberg, Ph.D.
Pamela Hieronymi, Ph.D.
Sheldon R. Smith, Ph.D.

Assistant Professors

Samuel J. Cumming, Ph.D.
Alexander J. Julius, Ph.D.

Lecturer

Andrew Hsu, Ph.D.

Scope and Objectives

In the last survey conducted by the Conference Board of the Associated Research Councils, UCLA's Philosophy Department was judged among the six best in the nation in terms of the quality of its faculty. It offers programs leading to the Bachelor of Arts and Ph.D. degrees.

Philosopher, translated from the Greek, means lover of wisdom. The term has come to mean someone who seeks knowledge, enlightenment, and truth. The undergraduate program is not directed at career objectives (although it is traditionally good preparation for law, theology, and graduate work in philosophy). Philosophy is taught to undergraduate students primarily as a contribution to their liberal education. All of the lower and most of the upper division course offerings should be of interest and useful to students who are reflective about their beliefs or who wish to become so. It also provides the occasion to ponder the foundations of almost any other subject to which they are exposed—whether history, religion, government, law, or science.

The principal goal of the graduate program is to produce philosophers of high quality, thinkers informed by the great historical traditions of Western philosophers who can apply the methods of philosophical analysis to a broad range of current philosophical problems. Since all its graduate students hope to teach at the college or university level, the department is also committed to training clear, able, and stimulating teachers.

Undergraduate Study

Philosophy B.A.

Preparation for the Major

Required: Four lower division courses, including Philosophy 7 or 21, 22, 31, and one other lower division philosophy course.

Transfer Students

Transfer applicants to the Philosophy major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: one philosophy of mind or skepticism and rationality course, one ethical theory course, one symbolic logic course, and one additional philosophy course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Thirteen upper division (100 series) or graduate (200 series) philosophy courses (52 units), including Philosophy 100A, 100B, 100C. Seven of the 13 courses must be distributed among the groups into which the undergraduate and graduate courses are divided—history of philosophy; logic, semantics and philosophy of science; ethics and value theory; and metaphysics and epistemology. Students should take two courses in each of three of the groups and one course in the remaining group.

Contract courses (199) may be applied toward the major but not toward a group requirement. A maximum of 8 units of course 199 may be applied toward the major but not toward a group requirement. Courses 100A, 100B, 100C may not be applied toward any group requirement. No course used to satisfy the major or preparation requirements may be taken on a P/NP basis.

Students intending to do graduate work in philosophy should consult both the graduate and undergraduate advisers.

Honors Program

Admission

To be admitted to the honors program, students must have taken at least three upper division philosophy lecture or seminar courses at UCLA with an overall grade-point average of 3.7.

Requirements

To be awarded honors in philosophy at graduation, Philosophy majors must (1) have a 3.7 grade-point average in UCLA philosophy courses and a 3.7 GPA in upper division UCLA philosophy courses; (2) satisfy the honors directed study requirement by taking Philosophy 198A and 198B in conjunction (usually, but not necessarily concurrently) with two different regular upper division philosophy courses supervised by the instructors of those courses; and (3) receive a grade of A– or better in each course applied toward satisfaction of the honors requirement.

Students may substitute Philosophy 191 for either course 198A or 198B or, alternatively, may complete up to two philosophy graduate seminars in lieu of courses 198A and/or 198B. For an undergraduate or graduate seminar to be applied toward the honors directed study requirement, the consent of both the seminar instructor and the faculty honors adviser is required in advance. Students may also substitute up to one 4-unit Philosophy 199 course in which they produce a substantial paper that represents an original piece of research or its equivalent.

Exceptional work done to satisfy the honors requirement may be submitted to the department chair for consideration for highest honors.

Philosophy Minor

To enter the Philosophy minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Courses (8 units): Philosophy 7 or 21, and 22 or 31.

Required Upper Division Courses (24 units): Five courses, including at least one from each of three of the four groups into which the undergraduate and graduate courses are divided (Philosophy 100A, 100B, 100C apply toward Group I); one additional upper or lower division philosophy course.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Philosophy offers Master of Arts (M.A.), Candidate in Philosophy (C.Phil.), and Doctor of Philosophy (Ph.D.) degrees in Philosophy. A concurrent degree program (Philosophy Ph.D./Law J.D.) is also offered.

Philosophy

Lower Division Courses

1. Beginnings of Western Philosophy. (5) Lecture, three hours; discussion, one hour. Origins of Greek cosmology and philosophy, beginnings of systematic thought and scientific investigation concerning such questions as origin and nature of the material world, concept of laws of nature, possibility and extent of knowledge. Concentration on pre-Socratic philosophers, particularly Anaximander, Heraclitus, the Pythagoreans, Parmenides, Empedocles, and Greek atomists, during first two thirds of course and on Socrates and some earlier works of Plato in last few weeks. P/NP or letter grading.

2. Introduction to Philosophy of Religion. (4) Lecture, three hours; discussion, one hour. Introductory study of such topics as nature and grounds of religious belief, relation between religion and ethics, nature and existence of God, problem of evil, and what can be learned from religious experience.

3. Historical Introduction to Philosophy. (5) Lecture, three hours; discussion, two hours. Historical introduction to Western philosophy based on classical texts dealing with major problems, related thematically and studied in chronological order: properties of rational argument, existence of God, problem of knowledge, nature of causality, relation between mind and body, possibility of justice, and others. P/NP or letter grading.

4. Philosophical Analysis of Contemporary Moral Issues. (5) Lecture, three hours; discussion, one hour. Critical study of principles and arguments advanced in discussion of current moral issues. Possible topics include revolutionary violence, rules of warfare, sexual morality, right of privacy, punishment, nuclear warfare and deterrence, abortion and mercy killing, experimentation with human subjects, rights of women. P/NP or letter grading.

5. Philosophy in Literature. (5) Lecture, three hours; discussion, one hour. Philosophical inquiry into such themes as freedom, responsibility, guilt, love, self-

knowledge and self-deception, death, and meaning of life through examination of great literary works in Western tradition. P/NP or letter grading.

6. Introduction to Political Philosophy. (5) Lecture, three hours; discussion, one hour. Study of some classical or contemporary works in political philosophy. Questions that may be discussed include What is justice? Why obey the law? Which form of government is best? How much personal freedom should be allowed in society? P/NP or letter grading.

7. Introduction to Philosophy of Mind. (5) Lecture, three hours; discussion, one hour. Introductory study of philosophical issues about nature of the mind and its relation to the body, including materialism, functionalism, behaviorism, determinism and free will, nature of psychological knowledge. P/NP or letter grading.

8. Introduction to Philosophy of Science. (5) Lecture, three hours; discussion, one hour. Study of selected problems concerning the character and reliability of scientific understanding, such as nature of scientific theory and explanation, reality of theoretical entities, inductive confirmation of hypotheses, and occurrence of scientific revolutions. Discussion at nontechnical level of episodes from history of science. P/NP or letter grading.

9. Principles of Critical Reasoning. (4) Nature of arguments: how to analyze them and assess soundness of the reasoning they represent. Common fallacies that often occur in arguments discussed in light of what counts as a good deductive or inductive inference. Other topics include use of language in argumentation to arouse emotions as contrasted with conveying thoughts, logic of scientific experiments and hypothesis-testing in general, and some general ideas about probability and its application in making normative decisions (e.g., betting).

21. Skepticism and Rationality. (4) Lecture, three hours; discussion, one hour. Can we know anything with certainty? How can we justify any of our beliefs? Introduction to study of these and related questions through works of some great philosophers of modern period, such as Descartes, Hume, Leibniz, or Berkeley.

22. Introduction to Ethical Theory. (5) Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course 22W. Recommended or required for many upper division courses in Group III. Systematic introduction to ethical theory, including discussion of egoism, utilitarianism, justice, responsibility, meaning of ethical terms, relativism, etc. P/NP or letter grading.

22W. Introduction to Ethical Theory. (5) Lecture, three hours; discussion, one hour. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Limited to freshmen/sophomores. Not open for credit to students with credit for course 22. Introduction to major ethical theories in Western thought. Examination of works of Plato, Aristotle, Hume, Kant, and Mill. Topics include ideas of virtue, obligation, egoism, relativism, and foundations of morals. Four papers required. Satisfies Writing II requirement. Letter grading.

31. Logic, First Course. (4) Lecture, three hours; discussion, one hour. Recommended for students who plan to pursue more advanced studies in logic. Elements of symbolic logic, sentential and quantificational; forms of reasoning and structure of language.

97. Freshman Seminar. (4) Variable topics; consult *Schedule of Classes* or "Department Announcements" for topics to be offered in a specific term. May be repeated for credit with consent of instructor.

Upper Division Courses

100A. History of Greek Philosophy. (4) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Survey of origins of Greek metaphysics from pre-Socratics through Plato and Aristotle.

100B. Medieval and Early Modern Philosophy. (4) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Strongly recommended requisite: course 100A. Survey of development and transformation of Greek metaphysics and epistemology

within context of philosophical theology, and transition from medieval to early modern period. Special emphasis on Augustine, Anselm, Aquinas, and Descartes.

100C. History of Modern Philosophy, 1650 to 1800. (4) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Strongly recommended requisite: course 100B. Courses 100A, 100B, and 100C should be taken in immediately successive terms if possible. Survey of development of metaphysics and theory of knowledge from 1650 to 1800, including Locke and/or Berkeley, Malebranche and/or Leibniz, and culminating in Hume and Kant. Topics may include views of these (and perhaps other) philosophers of the period on mind and body, causality, existence of God, skepticism, empiricism, limits of human knowledge, and philosophical foundations of modern science.

Group I: History of Philosophy

M101A. Plato—Earlier Dialogues. (4) (Same as Classics M146A.) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Study of selected topics in early and middle dialogues of Plato. P/NP or letter grading.

M101B. Plato—Later Dialogues. (4) (Same as Classics M146B.) Lecture, three hours; discussion, one hour. Requisite: course M101A. Study of selected topics in middle and later dialogues of Plato. P/NP or letter grading.

M102. Aristotle. (4) (Same as Classics M147.) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Study of selected works of Aristotle. P/NP or letter grading.

M103A. Ancient Greek and Roman Philosophy. (4) (Same as Classics M145A.) Lecture, three hours. Study of some major Greek and Roman philosophical texts, including those of pre-Socratics, Plato, Aristotle, and Hellenistic philosophers, with emphasis on historical and cultural setting of texts, their literary form, interrelations, and contribution to discussion of basic philosophical issues. P/NP or letter grading.

M103B. Later Ancient Greek Philosophy. (4) (Same as Classics M145B.) Lecture, three hours. Preparation: one course from 1, 100A, M101B, M102, or M103A. Study of some major texts in Greek philosophy of Hellenistic and Roman periods. Readings vary and include works by Stoics, skeptics, philosophers of science, Neoplatonists, etc. P/NP or letter grading.

104. Topics in Islamic Philosophy. (4) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Development of Muslim philosophy in its great age (from Kindo to Averroes, 850 to 1200), considered in connection with Muslim theology and mysticism.

105. Medieval Philosophy from Augustine to Maimonides. (4) Preparation: one philosophy course. Development of early medieval philosophy within framework of Judeo-Christian theology and its assimilation and criticism of Greek philosophical heritage. Focus on problem of universals, existence and nature of God, problem of evil, and doctrines of the Trinity and atonement. Selected writings from Augustine through Maimonides read in English translation.

106. Later Medieval Philosophy. (4) Preparation: one philosophy course. Metaphysics, theory of knowledge, and theology of Aquinas, Duns Scotus, and Ockham, with less full discussion of other authors from the 13th through early 15th century. Selected texts read in English translation.

107. Topics in Medieval Philosophy. (4) Lecture, four hours; discussion, one hour. Preparation: one philosophy course. Recommended requisite: course 105 or 106. Study of philosophy and theology of one medieval philosopher such as Augustine, Anselm, Abelard, Aquinas, Scotus, or Ockham, or study of one single area such as logic or theory of knowledge in several medieval philosophers. Topic announced each term. May be repeated for credit with consent of instructor. P/NP or letter grading.

C108. Hobbes. (4) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Hobbes' political philosophy, especially *Leviathan*, with at-

tention to its relevance to contemporary political philosophy. May be concurrently scheduled with course C208. P/NP or letter grading.

C109. Descartes. (4) Lecture, four hours. Requisites: course 21 or two philosophy courses. Study of works of Descartes, with discussion of issues such as problem of skepticism, foundations of knowledge, existence of God, relation between mind and body, and connection between science and metaphysics. May be concurrently scheduled with course C209. P/NP or letter grading.

C110. Spinoza. (4) Lecture, three hours; discussion, one hour. Requisite: course 21. Study of philosophy of Spinoza. May be concurrently scheduled with course C210, in which case there is weekly discussion meeting, plus fewer readings and shorter papers for undergraduates. Limited to 30 students when concurrently scheduled. P/NP or letter grading.

C111. Leibniz. (4) Lecture, three hours; discussion, one hour. Requisite: course 21. Study of philosophy of Leibniz. May be concurrently scheduled with course C211, in which case there is weekly discussion meeting, plus fewer readings and shorter papers for undergraduates. Limited to 30 students when concurrently scheduled. P/NP or letter grading.

C112. Locke and Berkeley. (4) Lecture, four hours. Preparation: one philosophy course. Study of philosophies of Locke and Berkeley, with emphasis in some cases on one or the other. Limited to 30 students when concurrently scheduled with course C212. P/NP or letter grading.

C114. Hume. (4) Lecture, four hours. Preparation: one philosophy course. Selected topics from metaphysical, epistemological, and ethical writings of Hume. Limited to 40 students when concurrently scheduled with course C214. P/NP or letter grading.

C115. Kant. (4) (Formerly numbered 115.) Lecture, three hours; discussion, one hour. Requisite: course 21 or 22. Study of Kant's views on related topics in theory of knowledge, ethics, and politics. May be repeated for credit with consent of instructor. Concurrently scheduled with course C215. P/NP or letter grading.

116. 19th-Century Philosophy. (4) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Selected topics in 19th-century thought.

117. Late 19th- and Early 20th-Century Philosophy. (4) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Selected topics in work of one or more of following philosophers: Bolzano, Frege, Husserl, Meinong, G. Moore, early Russell, and Wittgenstein. May be repeated for credit with consent of instructor.

118. Kierkegaard. (4) Preparation: one philosophy course. Philosophical study of some major works of Kierkegaard, with emphasis on interpretation of the texts.

C119. Topics in Modern Philosophy. (4) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Selected topics in one or more philosophies of early modern period, or study in single area such as theory of knowledge or metaphysics in several philosophies. May be repeated for credit with consent of instructor. Concurrently scheduled with course C219. P/NP or letter grading.

Group II: Logic, Semantics, and Philosophy of Science

124. Philosophy of Science: Historical. (4) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Historical introduction to philosophy of science. Several general topics discussed in context of actual episodes in development of natural sciences. May be repeated for credit with consent of instructor.

125. Philosophy of Science: Contemporary. (4) Lecture, three hours; discussion, one hour. Requisite: course 31 or 124. Introduction to contemporary philosophy of science, focusing on problems of central importance. May be repeated for credit with consent of instructor.

126. Philosophy of Science: Social Sciences. (4) Lecture, three hours; discussion, one hour. Preparation: two philosophy courses. Discussion of topics in philosophy of social sciences (e.g., methods of social sciences in relation to physical sciences, value-bias in social inquiry, concept formation, theory construction, explanation and prediction, nature of social laws).

127A. Philosophy of Language. (4) Lecture, three hours; discussion, one hour. Requisite: course 31. Syntax, semantics, pragmatics. Semantical concept of truth, sense and denotation, synonymy and analyticity, modalities and tenses, indirect discourse, indexical terms, semantical paradoxes. May be repeated for credit with consent of instructor. P/NP or letter grading.

127B. Philosophy of Language. (4) Lecture, three hours; discussion, one hour. Requisite: course 31. Course 127A is not requisite to 127B. Selected topics similar to those considered in course 127A, but at more advanced and technical level. May be repeated for credit with consent of instructor. P/NP or letter grading.

127C. Philosophy of Language. (4) Lecture, four hours; discussion, one hour. Requisite: course 31. Recommended: course 127A or 127B. Selected topics similar to those considered in course 127B, but with focus on contemporary figures. May be repeated for credit with consent of instructor. P/NP or letter grading.

128A. Philosophy of Mathematics. (4) Lecture, four hours. Requisites: courses 31, 137, and preferably one additional logic course. Philosophy of mathematics; logicism of Frege and Russell, arithmetic reduced to logic; ramified type theory and impredicative definition (Russell, Poincaré, early Weyl). P/NP or letter grading.

128B. Philosophy of Mathematics. (4) Lecture, four hours. Requisite: course 128A. Intuitionism of Brouwer, Heyting, and later Weyl; proof theory of Hilbert. P/NP or letter grading.

129. Philosophy of Psychology. (4) Lecture, three hours; discussion, one hour. Preparation: one 4-unit psychology course, one philosophy course. Selected philosophical issues arising from psychological theories. Relevance of computer simulation to accounts of thinking and meaning; relations between semantical theory and learning theory; psychological aspects of theory of syntax; behaviorism, functionalism, and alternatives; physiology and psychology.

130. Philosophy of Space and Time. (4) Lecture, three hours; discussion, one hour. Preparation: two philosophy courses or one philosophy course and one physics course. Selected philosophical problems concerning nature of space and time. Philosophical implications of space-time theories, such as those of Newton and Einstein. Topics may include nature of geometry, conventionalism, absolutist versus relationist views of space and time, philosophical impact of relativity theory.

131. Science and Metaphysics. (4) Lecture, four hours. Preparation: two philosophy courses. Recommended: some background in basic calculus and physics. Intensive study of one or two metaphysical topics on which results of modern science have been thought to bear. Topics may include nature of causation, reality and direction of time, time-travel, backwards causation, realism, determinism, absolute view of space, etc. May be repeated for credit with consent of instructor. P/NP or letter grading.

132. Philosophy of Biology. (4) Lecture, four hours. Preparation: one philosophy course. Intensive study of one or two current topics in philosophy of biology, which may include structure of evolutionary theory, fitness, taxonomy, reductionism, concept of biological species, and biological explanation. P/NP or letter grading.

133. Topics in Logic and Semantics. (4) Lecture, four hours. Requisite: course 137. Possible topics include formal theories, definitions, alternative theories of descriptions, many-valued logics, deviant logics. P/NP or letter grading.

M134. Introduction to Set Theory. (4) (Same as Mathematics M114S.) Lecture, three hours; discussion, one hour. Requisite: course 135 or Mathematics 110A or 131A. Axiomatic set theory as framework for

mathematical concepts; relations and functions, numbers, cardinality, axiom of choice, transfinite numbers. P/NP or letter grading.

135. Introduction to Metalogic. (4) Lecture, four hours; discussion, one hour. Requisite: course 31. Metatheory sentential logic and first-order logic. Introduction to formal language, formal deductive systems, and models. Compactness and completeness theorems that concern complexity of notion of logical consequences. Letter grading.

136. Modal Logic. (4) Lecture, four hours. Requisite: course 31. First course in two-term sequence (also see course 176). Topics include various normal modal systems, derivability within the systems, Kripke-style semantics and generalizations, Lemmon/Scott completeness, incompleteness in tense and modal logic, quantificational extensions. Letter grading.

137. Logic, Second Course. (4) (Formerly numbered 32.) Lecture, three hours; discussion, one hour. Enforced requisite: course 31 (preferably in preceding term). Symbolic logic: extension of systematic development of course 31. Quantifiers, identity, definite descriptions. P/NP or letter grading.

Group III: Ethics and Value Theory

150. Society and Morals. (4) Lecture, three hours; discussion, one hour. Requisite: course 22. Critical study of principles and arguments advanced in discussion of current moral and social issues. Topics similar to those in course 4, but familiarity with some basic philosophical concepts and methods presupposed. May be repeated for credit with consent of instructor.

151A-C151B-151C. History of Ethics. (4-4-4) Lecture, three hours; discussion, one hour. Preparation: two philosophy courses. Each course may be taken independently for credit. P/NP or letter grading. **151A.** Selected Classics in Ancient Ethical Theories: Plato, Aristotle; **C151B.** Modern. Intensive study of Kant's ethical theory. May be repeated for credit with consent of instructor. May be concurrently scheduled with course C245; **151C.** Selected Classics of Medieval Ethics.

153A. Topics in Ethical Theory: Normative Ethics. (4) Lecture, three hours; discussion, one hour. Requisite: course 22. Study of selected topics in normative ethical theory. Topics may include human rights, virtues and vices, principles of culpability and praiseworthiness (criteria of right action). May be repeated for credit with consent of instructor. P/NP or letter grading.

C153B. Topics in Ethical Theory: Metaethics. (4) Lecture, three hours; discussion, one hour. Requisite: course 22. Study and analysis of basic concepts, selected problems, and contemporary issues in metaethics. Topics may include analysis of moral language, justification of moral beliefs, moral realism, skepticism, free will, moral motivation, etc. May be repeated for credit with consent of instructor. May be concurrently scheduled with course C253B. P/NP or letter grading.

154. Topics in Value Theory: Rationality and Action. (4) Lecture, three hours; discussion, one hour. Requisite: course 6 or 7 or 22. Selected topics concerning normative issues in practical rationality or philosophy of action. Topics may include moral and practical dilemmas, nature of reasons for action, rationality of morality and prudence, weakness of will, freedom of will, and decision theory. May be repeated for credit with consent of instructor. P/NP or letter grading.

154B. Topics in Value Theory: Moral Responsibility and Free Will. (4) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Examination of philosophical problems surrounding moral responsibility and free will, using contemporary or classical readings in attempt to better understand kind of freedom required for moral agents. P/NP or letter grading.

155. Medical Ethics. (4) Lecture, three hours; discussion, one hour. Examination of philosophical issues raised by problems of medical ethics, such as abortion, euthanasia, and medical experimentation. P/NP or letter grading.

C156. Topics in Political Philosophy. (4) Lecture, three hours; discussion, one hour. Analysis of some basic concepts in political theory. May be repeated for credit with consent of instructor. May be concurrently scheduled with course C247. P/NP or letter grading.

157A-157B. History of Political Philosophy. (4-4) Lecture, three hours; discussion, one hour. Preparation: two philosophy courses. May be repeated with consent of instructor. **157A.** Reading and discussion of classic works in earlier political theory, especially those by Hobbes, Locke, Hume, and Rousseau. **157B.** Reading and discussion of classic works in later political theory, especially those by Kant, Hegel, and Marx.

161. Topics in Aesthetic Theory. (4) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Philosophical theories about nature and importance of art and art criticism, aesthetic experience, and aesthetic values. May be repeated for credit with consent of instructor.

166. Philosophy of Law. (4) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Examination, through study of recent philosophical writings, of such topics as nature of law, relationship of law and morals, legal reasoning, punishment, and obligation to obey the law. P/NP or letter grading.

Group IV: Metaphysics and Epistemology

170. Philosophy of Mind. (4) Lecture, three hours; discussion, one hour. Preparation: two relevant philosophy courses. Analysis of various problems concerning nature of mind and mental phenomena, such as relation between mind and body, and our knowledge of other minds. May be repeated once for credit with consent of instructor.

172. Philosophy of Language and Communication. (4) Lecture, three hours; discussion, one hour. Prerequisites: courses 127A, 127B. Theories of meaning and communication; how words refer to things; limits of meaningfulness; analysis of speech acts; relation of everyday language to scientific discoveries. P/NP or letter grading.

174. Topics in Theory of Knowledge. (4) Lecture, three hours; discussion, one hour. Prerequisite: course 182 or 183. Intensive investigation of one or two selected topics or works in theory of knowledge, such as a priori knowledge, problem of induction, memory, knowledge as justified true belief. Topics announced each term. May be repeated for credit with consent of instructor. P/NP or letter grading.

175. Topics in Philosophy of Religion. (4) Lecture, three hours; discussion, one hour. Prerequisite: course 21 or 22. Intensive investigation of one or two topics or works in philosophy of religion, such as attributes of God, arguments for or against existence of God, or relation between religion and ethics. Topics announced each term. May be repeated for credit with consent of instructor.

176. Metaphysics of Modality. (4) Lecture, four hours. Prerequisites: courses 31, 137. Highly recommended: course 136. Second course in two-term sequence (also see course 136). Metaphysical foundations of modal logic and philosophical basis of modal theory of modal logic. What are possible worlds? What is accessibility relation? Is modal logic one logic or one theory? Is its focus logical or metaphysical necessity? Are both notions really distinct? How metaphysically involved is (quantified) modal logic? What is its connection to doctrines of (1) Haecceitism and (2) Aristotelian Essentialism? P/NP or letter grading.

177A. Existentialism. (4) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Analysis of methods, problems, and views of some of the following: Kierkegaard, Nietzsche, Heidegger, Jaspers, Sartre, Marcel, and Camus. Possible topics include metaphysical foundations, nature of mind, freedom, problem of self, other people, ethics, existential psychoanalysis.

177B. Historical Studies in Existentialism. (4) Preparation: one philosophy course. Study of central philosophical texts of one of the following: Nietzsche, Heidegger, Jaspers, Buber, Sartre, or Camus. Emphasis on explication and interpretation of the texts. May be repeated for credit with consent of instructor.

178. Phenomenology. (4) Lecture, three hours; discussion, one hour. Preparation: two philosophy courses. Introduction to phenomenological method of approaching philosophical problems via works of some of the following: Brentano, Husserl, Heidegger, Scheler, Sartre, Merleau-Ponty, Ricoeur. Topics include ontology, epistemology, and particularly philosophy of mind.

179. Asian Philosophy. (4) Lecture, three hours; discussion, one hour. Examination of central concepts and arguments in Buddhist or Chinese philosophy. Appropriate parallels to social concepts in Western tradition. May be repeated for credit with consent of department. P/NP or letter grading.

180. Philosophy of Action. (4) Lecture, four hours. Preparation: two philosophy courses. Study of various concepts employed in understanding human action. Topics may include rational choice, desire, intention, weakness of will, and self-deception. P/NP or letter grading.

181. Philosophy of Perception. (4) Lecture, four hours. Preparation: two philosophy courses. Critical study of main philosophical theories of perception and arguments used to establish them. P/NP or letter grading.

182. Elements of Metaphysics. (4) Lecture, three hours; discussion, one hour. Prerequisite: course 21. Study of basic metaphysical questions; nature of physical world, of minds, and of universals; and answers provided by alternative systems (e.g., phenomenism, materialism, dualism). P/NP or letter grading.

183. Theory of Knowledge. (4) Lecture, three hours; discussion, one hour. Prerequisite: course 21. Analysis of concept of empirical knowledge. May be repeated for credit with consent of instructor. P/NP or letter grading.

184. Topics in Metaphysics. (4) Lecture, three hours; discussion, one hour. Prerequisite: course 21. Intensive investigation of one or two topics or works in metaphysics, such as personal identity, nature of dispositions, possibility and necessity, universals and particulars, causality. Topics announced each term. May be repeated for credit with consent of instructor. P/NP or letter grading.

185. Major Philosophers of 20th Century. (4) Lecture, three hours; discussion, one hour. Preparation: two philosophy courses. Study of writings of one or more major modern philosophers (e.g., Russell, Moore, Wittgenstein, Carnap, Quine). May be repeated for credit with consent of instructor. P/NP or letter grading.

Special Studies

M187. Philosophical Analysis of Issues in Feminist Theory. (4) (Same as Women's Studies M110C.) Lecture, three hours. Prerequisite for Women's Studies majors: Women's Studies 10; for other students: one philosophy course. Examination in depth of different theoretical positions on gender and women as they have been applied to study of philosophy. Emphasis on theoretical contributions made by new scholarship on women in philosophy. Critical study of concepts and principles that arise in discussion of women's rights and liberation. Philosophical approach to feminist theories. May be repeated for credit with consent of instructor. Letter grading.

191. Variable Topics Research Seminars: Philosophy. (4) Seminar, one hour; discussion, three hours. Variable topics; consult *Schedule of Classes* or "Department Announcements" for topic to be offered in specific term. Reading, discussion, and development of culminating project. May be repeated for credit with consent of instructor. P/NP or letter grading.

198A-198B. Honors Research in Philosophy. (2-2) Tutorial, two hours. Limited to junior/senior philosophy honors program students. Each course to be taken in conjunction with one upper division philosophy lecture course, either concurrently or in subsequent term, un-

der direct supervision of lecture course instructor. Advanced work related to lecture course, further reading, and preparation of 12- to 15-page paper representing original research. Courses 198A and 198B must be taken in conjunction with two different lecture courses, and both must be taken to satisfy departmental honors requirement. May be repeated for credit. Individual contract required. Letter grading.

198C. Honors Research in Philosophy. (4) Tutorial, four hours. Limited to junior/senior philosophy honors program students. Development and completion of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for credit. Individual contract required. Letter grading.

199. Directed Research in Philosophy. (2 to 4) Tutorial, three hours. Limited to juniors/seniors. Supervised individual research under guidance of faculty mentor. Culminating paper or research project required. Up to 8 units may be applied toward degree requirements, but no 199 course may be substituted for course in one of four groups on basis of similarity of subject matter. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200A-200B-200C. Seminar for First-Year Graduate Students. (4-4-4) Seminar, three hours. Limited to and required of all first-year graduate philosophy students. Selected topics in metaphysics and epistemology, history of philosophy, and ethics. S/U or letter grading.

Group I. History of Philosophy

201. Plato. (4) Seminar, four hours. Study of later dialogues. S/U or letter grading.

202. Aristotle. (4) Lecture, four hours. Analysis of major problems in Aristotle's philosophy based on reading, exposition, and critical discussion of relevant texts in English translation. S/U or letter grading.

203. Seminar: History of Ancient Philosophy. (4) Seminar, four hours. Selected problems and philosophers. May be repeated for credit with consent of instructor. S/U or letter grading.

206. Topics in Medieval Philosophy. (4) Lecture, four hours. Study of philosophy and theology of one or several medieval philosophers such as Augustine, Anselm, Abelard, Aquinas, Scotus, or Ockham or study of single area such as logic or theory of knowledge in several medieval philosophers. Topics announced each term. May be repeated for credit with consent of instructor. S/U or letter grading.

207. Seminar: History of Medieval and Renaissance Philosophy. (4) Seminar, four hours. Selected problems and philosophers. May be repeated for credit with consent of instructor. S/U or letter grading.

C208. Hobbes. (4) Lecture, three hours; discussion, one hour. Preparation: one philosophy course. Hobbes' political philosophy, especially *Leviathan*, with attention to its relevance to contemporary political philosophy. May be concurrently scheduled with course C108. S/U or letter grading.

C209. Descartes. (4) Lecture, four hours. Study of works of Descartes, with discussion of issues such as problem of skepticism, foundations of knowledge, existence of God, relation between mind and body, and connection between science and metaphysics. May be concurrently scheduled with course C109. S/U or letter grading.

C210. Spinoza. (4) Lecture, three hours. Selected topics in philosophy of Spinoza. May be concurrently scheduled with course C110, in which case there is two-hour biweekly discussion meeting, plus additional readings and longer term paper for graduate students. S/U or letter grading.

C211. Leibniz. (4) Lecture, three hours. Selected topics in philosophy of Leibniz. May be concurrently scheduled with course C111, in which case there is two-hour biweekly discussion meeting, plus additional readings and longer term paper for graduate students. S/U or letter grading.

C212. Locke and Berkeley. (4) Lecture, four hours. Preparation: one philosophy course. Study of philosophies of Locke and Berkeley, with emphasis in some cases on one or the other. Limited to 30 students when concurrently scheduled with course C112. S/U or letter grading.

C214. Hume. (4) Lecture, four hours. Selected topics in philosophy of Hume. May be repeated for credit with consent of instructor. May be concurrently scheduled with course C114. S/U or letter grading.

C215. Kant. (4) (Formerly numbered 215.) Lecture, three hours; discussion, one hour. Requisite: course 21 or 22. Study of Kant's views on related topics in theory of knowledge, ethics, and politics. May be repeated for credit with consent of instructor. Concurrently scheduled with course C115. S/U or letter grading.

216. 19th-Century Philosophy. (4) Seminar, four hours. Topics in 19th-century philosophy. May be repeated for credit with consent of instructor. S/U or letter grading.

C219. Topics in Modern Philosophy. (4) Lecture, three hours; discussion, one hour. Selected topics in one or more philosophies of early modern period, or study in single area such as theory of knowledge or metaphysics in several philosophies. May be repeated for credit with consent of instructor. Concurrently scheduled with course C119. S/U or letter grading.

220. Seminar: Topics in History of Philosophy. (4) Seminar, three hours. Selected problems and philosophers which may be from different periods. May be repeated for credit with consent of instructor. S/U or letter grading.

Group II. Logic, Semantics, and Philosophy of Science

221A. Topics in Set Theory. (4) Lecture, three hours. Requisite: Mathematics M114S. Sets, relations, functions, partial and total orderings; well-orderings. Ordinal and cardinal arithmetic, finiteness and infinity, continuum hypothesis, inaccessible numbers. Formalization of set theory: Zermelo/Fraenkel; von Neumann/Gödel theory. May be repeated for credit with consent of instructor. S/U or letter grading.

221B. History of Set Theory. (4) Lecture, four hours. Development of concept of set and axiomatic set theory by examining selected writings of Frege, Cantor, Russell, Zermelo, Gödel, and several others. Origins and significance of certain key ideas, such as set theory as logic, axiomatic set theory as reaction to paradoxes, formal first-order axiomatic set theory as opposed to informal axiomatizations, type theory and rank hierarchy, ramification and predicativity, proper classes and sets as small classes, and particular Zermelo/Fraenkel axiomatic theory. Emphasis on actual expressed ideas and views of various influential authors. S/U or letter grading.

222A-222B-222C. Gödel Theory. (4-4-4) Lecture, four hours. S/U or letter grading. **222A.** Preparation: several courses in logic. First in series of three courses leading to Gödel incompleteness theorem and Tarski definition of truth. **222B.** Requisite: course 222A. Second-order arithmetic. Second in series of three courses leading to Gödel incompleteness theorem and Tarski definition of truth. **222C.** Requisite: course 222B. Gödel numbering and Gödel theory. Final course in Gödel theory series.

224. Philosophy of Physics. (4) Seminar, three hours. Selected philosophical topics related to physical theory, depending on interests and background of participants, including space and time; observation in quantum mechanics; foundations of statistical mechanics. May be repeated for credit with consent of instructor. S/U or letter grading.

225. Probability and Inductive Logic. (4) Lecture, three hours. Requisite: course M134 or Mathematics M114S. Topics may include interpretations of probability, Bayesian and non-Bayesian confirmation theory, paradoxes of confirmation, coherence, and conditioning. S/U or letter grading.

226. Topics in Mathematical Logic. (4) Lecture, four hours. Content varies from term to term. May be repeated for credit with consent of instructor. S/U or letter grading.

227. Philosophy of Social Science. (4) Lecture, four hours. Examination of philosophical problems concerning concepts and methods used in social sciences. Topics may include relation between social processes and individual psychology, logic of explanation in social sciences, determinism and spontaneity in history, interpretation of cultures radically different from one's own. Students with primary interest and advanced preparation in social sciences encouraged to enroll. May be repeated for credit with consent of instructor. S/U or letter grading.

230. Seminar: Logic. (4) Seminar, four hours. May be repeated for credit with consent of instructor. S/U or letter grading.

231. Seminar: Intensional Logic. (4) Seminar, four hours. Topics may include logic of sense and denotation, modal logic, logic of demonstratives, epistemic logic, intensional logic of *Principia Mathematica*, possible worlds semantics. May be repeated for credit with consent of instructor. S/U or letter grading.

232. Philosophy of Science. (4) Seminar, three hours. Selected topics in philosophy of science. May be repeated for credit with consent of instructor. S/U or letter grading.

233. Seminar: Philosophy of Physics. (4) Seminar, four hours. May be repeated for credit with consent of instructor. S/U or letter grading.

Group III. Ethics and Value Theory

241. Topics in Political Philosophy. (4) Seminar, four hours. Requisites: course 150 or C156 or 157A or 157B or any two philosophy courses. Examination of one or more topics in political philosophy (e.g., justice, democracy, human rights, political obligation, alienation). May be repeated for credit with consent of instructor. S/U or letter grading.

C245. History of Ethics: Modern. (4) Lecture, three hours; discussion, one hour. Intensive study of Kant's ethical theory. May be repeated for credit with consent of instructor. May be concurrently scheduled with course C151B. S/U or letter grading.

246. Seminar: Ethical Theory. (4) Seminar, four hours. Selected topics. Content varies from term to term. May be repeated for credit with consent of instructor. S/U or letter grading.

C247. Topics in Political Philosophy. (4) Lecture, three hours; discussion, one hour. Analysis of some basic concepts in political theory. May be repeated for credit with consent of instructor. May be concurrently scheduled with course C156. S/U or letter grading.

248. Problems in Moral Philosophy. (4) Seminar, four hours. Intensive study of some leading current problems in moral philosophy. May be repeated for credit with consent of instructor. S/U or letter grading.

C253B. Topics in Ethical Theory: Metaethics. (4) Lecture, three hours; discussion, one hour. Requisite: course 22. Study and analysis of basic concepts, selected problems, and contemporary issues in metaethics. Topics may include analysis of moral language, justification of moral beliefs, moral realism, skepticism, free will, moral motivation, etc. May be repeated for credit with consent of instructor. May be concurrently scheduled with course C153B. S/U or letter grading.

M254A-254B. Legal Theory Workshop. (1 to 6 each) (Same as Law M555.) Seminar, three hours. Course M254A is enforced requisite to 254B. Students engage with work in progress on philosophical issues in law of leading scholars from around country. Presentation of works in progress by visiting scholars every two weeks. Study by students of papers to be presented to gain background in relevant topics and to be prepared for speakers' presentations. Presentation of student papers to class for discussion. Substantial analytical paper required. In Progress (M254A) and S/U or letter (254B) grading.

255. Seminar: Aesthetic Theory. (4) Seminar, four hours. Selected topics. May be repeated for credit with consent of instructor. S/U or letter grading.

M256. Topics in Legal Philosophy. (4) (Same as Law M217.) Lecture, three hours. Examination of topics such as concept of law, nature of justice, problems of punishments, legal reasoning, and obligation to obey the law. May be repeated for credit with consent of instructor.

M257. Seminar: Philosophy of Law. (4) (Same as Law M524.) Seminar, three hours. Selected topics in philosophy of law. May be repeated for credit with consent of instructor.

259. Philosophical Research in Ethics and Value Theory. (2 to 4) Seminar, two hours. Preparation: completion of proposition requirement. Presentation of ongoing research by graduate students. Participants make presentations, analyze and discuss presentations of others, and read and discuss philosophical texts related to presentations. Must be taken for 4 units in quarters in which students present their own research. May be repeated for credit with consent of instructor. S/U grading.

Group IV. Metaphysics and Epistemology

271. Seminar: Topics in Metaphysics and Epistemology. (4) Seminar, three hours. May be repeated for credit with consent of instructor. S/U or letter grading.

275. Human Action. (4) Preparation: two upper division philosophy courses. Examination of theories, concepts, and problems concerning human actions. Topics may include analysis of intentional actions; determinism and freedom; nature of explanations of intentional actions. May be repeated for credit with consent of instructor.

280. 20th-Century Continental Philosophy. (4) Seminar, three hours. Selected topics in 20th-century continental European philosophy. May be repeated for credit with consent of instructor. S/U or letter grading.

281. Seminar: Philosophy of Mind. (4) Seminar, three hours. May be repeated for credit with consent of instructor. S/U or letter grading.

282. Seminar: Metaphysics. (4) Seminar, three hours. May be repeated for credit with consent of instructor. S/U or letter grading.

283. Seminar: Theory of Knowledge. (4) Seminar, three hours. May be repeated for credit with consent of instructor. S/U or letter grading.

284. Seminar: Philosophy of Perception. (4) Seminar, three hours. May be repeated for credit with consent of instructor. S/U or letter grading.

285. Philosophy of Psychoanalysis. (4) Seminar, three hours. Examination of topics such as nature and validity of psychoanalytic explanations and interpretations, psychoanalysis and language, metapsychological concepts such as the unconscious, ego, id, superego, defense mechanisms, and psychoanalytic conception of human nature. S/U or letter grading.

286. Philosophy of Psychology. (4) Seminar, four hours. Relevance of computer simulation to accounts of thinking and meaning; relations between semantical theory and learning theory; psychological aspects of theory of syntax; behaviorism, functionalism, and alternatives; physiology and psychology. S/U or letter grading.

287. Seminar: Philosophy of Language. (4) Seminar, three hours. May be repeated for credit with consent of instructor. S/U or letter grading.

288. Seminar: Wittgenstein. (4) Seminar, three hours. May be repeated for credit with consent of instructor. S/U or letter grading.

289. Seminar: Philosophy of Religion. (4) Seminar, four hours. May be repeated for credit with consent of instructor. S/U or letter grading.

290. Workshop: Philosophy of Language. (4) Seminar, two hours. Ongoing discussion of current issues in philosophy of language based on contemporary texts and current research. Presentations of

ideas by attending faculty and graduate students with open discussion. May be repeated for credit with consent of instructor.

291. Workshop: Philosophy of Mathematics. (4) Seminar, three hours. Ongoing discussion of current issues in philosophy of mathematics based on contemporary texts and current research. Presentations of ideas by attending faculty and graduate students with open discussion. May be repeated for credit with consent of instructor. S/U or letter grading.

299. Seminar: Philosophical Research. (4) Seminar, three hours. Preparation: advancement to candidacy. Presentation of ongoing research by graduate students or faculty members. Participants make presentations, analyze and discuss presentations of others, and read and discuss philosophical texts related to presentations. May be repeated for credit with consent of instructor. S/U grading.

Special Studies

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Teaching College Philosophy. (2 to 4) Seminar, to be arranged. Seminars, workshops, and apprentice teaching. Selected topics, including evaluation scales, various teaching strategies and their effects, and other topics in college teaching. May be repeated for credit. S/U grading.

501. Cooperative Program. (2 to 8) Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. Directed Individual Studies. (2 to 12) Tutorial, to be arranged. Properly qualified graduate students who wish to pursue one problem through reading or advanced study may do so if their proposed project is acceptable to one staff member. May be repeated for credit. S/U or letter grading.

597. Directed Studies for Graduate Examinations. (2 to 8) Tutorial, to be arranged. Preparation for M.A. comprehensive examination or Ph.D. oral qualifying examinations. S/U grading.

599. Research for Ph.D. Dissertation. (2 to 12) Tutorial, to be arranged. Preparation: advancement to Ph.D. candidacy. May be repeated for credit. S/U grading.

PHYSICS AND ASTRONOMY

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Maha Ashour-Abdalla, Ph.D.
Zvi Bern, Ph.D.

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Robijn F. Bruinsma, Ph.D.
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Benjamin Zuckerman, Ph.D.

Associate Professors

Troy A. Carter, Ph.D.
Steven R. Furlanetto, Ph.D.
Michael Gutperle, Ph.D.
Mayank R. Mehta, Ph.D.
Alice E. Shapley, Ph.D.
Yaroslav Tserkovnyak, Ph.D.
Vladimir V. Vassiliev, Ph.D.

Assistant Professors

Dolores Bozovic, Ph.D.
Michael P. Fitzgerald, Ph.D.
Eric R. Hudson, Ph.D.
Pietro Musumeci, Ph.D.

Christoph Niemann, Ph.D.
Brian C. Regan, Ph.D.

Adjunct Professors

Elihu Abrahams, Ph.D.
William A. Barletta, Ph.D.

Scope and Objectives

Since the time of the ancient Greeks, a natural affinity has existed between astronomy and physics, and the intellectual development of the two disciplines has often proceeded synergistically. Newton's discovery of the laws of mechanics and universal gravitation not only explained motion on Earth, but brought the heavens and Earth into a single quantitative framework in which both are governed by the same laws. The revolutionary discoveries of twentieth-century physics—quantum mechanics and nuclear physics—were rapidly adopted by astronomers to interpret the spectroscopic observations of the stars and to construct accurate models of stellar structure. Einstein's general theory of relativity predicted the expansion of the universe and that most awesome compaction of matter—the black hole.

Today astronomers study the accretion of matter onto supermassive black holes in quasars and search the most distant regions of the universe to learn about the exotic physical conditions that existed when the universe's expansion was only fractions of a second old. By measuring the gravitational interactions on distance scales from galaxies to the vast superclusters of galaxies, astronomers have concluded that most of the universe's matter is dark or nonluminous; physicists have speculated that this dark matter may consist of yet-undiscovered exotic particles that are predicted by the most advanced theories of elementary particle physics.

Department of Physics and Astronomy faculty members and students are able to study the universe in the holistic manner which is demanded by the breadth of these two disciplines.

Undergraduate Study

The Department of Physics and Astronomy offers a choice of four undergraduate majors: the B.S. degree program in Astrophysics, the B.S. degree program in Biophysics, the B.S. degree program in Physics, and the B.A. degree program in Physics. Each course taken to fulfill any of the requirements for the majors must be taken for a letter grade.

Astronomy Courses

The department offers general courses to all University students, including those who are not science oriented.

Astronomy 3 is the fundamental one-term course for students who do not major in physical sciences and should be taken in the first or second year.

Astronomy 4, 5, and 6 develop the topics covered in course 3 to somewhat greater depths but are still aimed at nonscience majors. Course 4 discusses stellar and supermassive

black holes; course 5 concentrates on the problem of life in the universe; course 6 discusses the structure and evolution of the universe.

Astronomy 81 and 82 are general survey courses recommended for science majors in their second year. They systematically introduce astrophysics and require a good background in physics and mathematics (at least two terms of the Physics 1 series and two terms of the Mathematics 31 and 32 series).

Students of junior and senior standing in Physics or related sciences are invited to select any of these courses: Astronomy 115, 117, 127, 140, 180.

Physics Courses

Students who wish to use physics to satisfy part of the general education requirements in the physical sciences and who have no mathematics background beyond the high school mathematics required for admission to UCLA may take Physics 10.

Physics 1Q is intended for entering freshman Physics majors and other interested students. Although it is not a required course or a part of or requisite to any general physics sequence of courses, its purpose is to indicate the nature of current research problems in physics on a level intended to be attractive to entering students with a good high school science and mathematics background.

Physics 1A, 1B, and 1C, or 1AH, 1BH, and 1CH form sequences of courses in general physics for majors in Physics.

The department takes into account prior preparation in physics. If students feel their background would permit acceleration, they may be exempted from one course in the 1A, 1B, 1C sequence by taking the final examination with a class at the end of any term. This serves as a placement examination. A satisfactory score on one or both parts of the College Board Advanced Placement Physics C Test may also serve as a placement examination, but placement is not automatic. Students should discuss such possibilities with their departmental adviser.

Physics 6A, 6B, 6C form a one-year sequence of courses in basic physics for students in the biological and health sciences.

Physics 10 is a one-term, nonlaboratory course that surveys the whole field of physics. Any two or more courses from Physics 1A, 6A, and 10 are limited to 6 units credit.

Astrophysics B.S.

Preparation for the Major

Required: Astronomy 81, 82; Physics 1A or 1AH, 1B or 1BH, 1C or 1CH, 4AL, 4BL, 17, 18L; Mathematics 31A, 31B, 32A, 32B, 33A, 33B; Program in Computing 10A or demonstrated ability to program. Systematic study of astrophysics should begin with Astronomy 81 and 82, taken in the second year. *Recommended:* Chemistry and Biochemistry 20A.

Transfer Students

Transfer applicants to the Astrophysics major with 90 or more units must complete as many of the following introductory courses as possible prior to admission to UCLA: two astrophysics courses, two years of calculus, one and one half years of calculus-based physics with laboratory for majors, and one programming course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Astronomy 115, 117, 127, 140, 180; Physics 105A, 105B, 110A, 110B, 115A, 115B, 115C, 131. *Recommended:* Physics 108, M122, 124, 132, 140A, 140B.

Honors Program

Senior majors in Astrophysics with a 3.5 grade-point average in all astronomy, mathematics, and physics courses are eligible for the honors program in astrophysics. In addition to completing all courses required for the major, students must complete two terms of Astronomy 199. To receive honors and highest honors at graduation, the grade-point average must remain at 3.5 and 3.75 or better, respectively, and work in course 199 must reflect original research and be accepted by the departmental honors committee.

Biophysics B.S.

The goal of the Biophysics major is to provide students with the undergraduate background to enable them to enter very good graduate programs in biophysics, molecular biology, and physics. As the molecular biophysics field emerges as an important and rapidly developing area of scientific research and knowledge, the major is designed to provide both the scientific/technical training and the immersion in physics and molecular biology necessary to enable students to understand and integrate these fields intellectually and to have the opportunity to become leaders in bringing the analytic and experimental techniques of both fields to bear on the complicated behavior of microbiological macromolecular systems.

Preparation for the Major

Required: Physics 1A or 1AH, 1B or 1BH, 1C or 1CH, 4AL, 4BL, 17, 87; Chemistry and Biochemistry 20A, 20B, 30A, 30B; Life Sciences 2, 3 or 3H, 4; Mathematics 31A, 31B, 32A, 32B, 33A. *Recommended:* Life Sciences 1, Mathematics 33B, Physics 18L.

Transfer Students

Transfer applicants to the Biophysics major with 90 or more units must have completed the following introductory courses prior to admission to UCLA: two years of calculus, one and one half years of calculus-based physics with laboratory for majors, one year of general biology with laboratory for majors, and one year of general chemistry with laboratory for majors.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Physics 105A, 110A, 110B, 115A, 115B, 131, M180G, 187; Chemistry and Biochemistry 110A, 153A, 153L; Molecular, Cell, and Developmental Biology 100. *Recommended:* Physics 108, 117, 140B, C185, guided research in chemistry and biochemistry, molecular, cell, and developmental biology, or physics. An overall 2.0 grade-point average in all upper division courses is required.

Physics B.S.

The Physics B.S. major should be taken if students intend to continue toward the Ph.D. in Physics.

Preparation for the Major

Required: Physics 1A or 1AH, 1B or 1BH, 1C or 1CH, 4AL, 4BL, 17, 18L; Chemistry and Biochemistry 20A; Mathematics 31A, 31B, 32A, 32B, 33A, 33B. A detailed brochure on the major is available from the Undergraduate Office, 1-707A Physics and Astronomy Building.

Transfer Students

Transfer applicants to the Physics B.S. major with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of calculus, one and one half years of calculus-based physics with laboratory for majors, and one general chemistry course for majors.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Physics 105A, 105B, 110A, 110B, 112, 115A, 115B, 115C, 131. The remainder of the course of study consists of a plan, to be worked out by students in consultation with their designated departmental adviser, that details which courses they take to complete the degree. There are four overall requirements: (1) the plan must be worked out five terms before students expect to graduate; (2) the plan must include at least two courses from the Physics 180 series, which should be taken in the senior year; (3) there must be three additional upper division courses in the plan, preferably selected from Physics 108, 114, 117, M122, 123, 124, 126, 132, 140A, 140B; (4) there must be written rationale for the plan. Except for the Physics 180 laboratories, the courses need not be in the Physics and Astronomy Department. However, it is expected that the courses fit into a coherent structure. It is important that the structure and rationale are thought out carefully, as the plan must be endorsed by the designated adviser and be approved by the departmental academic affairs committee. Preapproved plans of study are available from the undergraduate advisers. A C

average is required in all courses taken to satisfy the major requirements.

Students preparing for graduate school should take additional courses in physics and mathematics. Physics 108, 114, 117, M122, 123, 124, 126, 132, 140A, and 140B are recommended.

Honors Programs

The department offers three honors programs leading to graduation with honors or highest honors in physics. Students are eligible after completing the preparation for the major and four upper division physics courses with an overall grade-point average of 3.0 and a 3.5 GPA in upper division physics and mathematics courses. Contact the Undergraduate Office for a complete description of the programs and an application.

Physics B.A.

The Physics B.A. major is intended to provide a strong background in physics, yet allow students flexibility to study other fields as well. It should be of particular interest to students who want to double major or who want to teach science. Students who intend to continue work toward the Ph.D. in Physics are advised to work for the B.S. in Physics as described earlier.

Preparation for the Major

Required: Physics 1A or 1AH, 1B or 1BH, 1C or 1CH, 4AL, 4BL, 17, 18L; Chemistry and Biochemistry 20A; Mathematics 31A, 31B, 32A, 32B, 33A, 33B. A detailed brochure on the major is available from the Undergraduate Office, 1-707A Physics and Astronomy Building.

Transfer Students

Transfer applicants to the Physics B.A. major with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of calculus, one and one half years of calculus-based physics with laboratory for majors, and one general chemistry course for majors.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Physics 105A, 105B, 110A, 110B, 112, 115A, 115B, 115C, 131, one course from the 180 series. A C average in the upper division physics courses is required.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Physics and Astronomy offers the Master of Arts in Teaching (M.A.T.)

degree in Astronomy, Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Astronomy, Master of Arts in Teaching (M.A.T.) degree in Physics, and Master of Science (M.S.) and Doctor of Philosophy (Ph.D.) degrees in Physics.

Astronomy

Lower Division Courses

3. Nature of Universe. (5) Lecture, three hours; discussion, two hours. Not open to students with credit for or currently enrolled in course 81 or 82. No special mathematical preparation required beyond that necessary for admission to UCLA in freshman standing. Course for general UCLA students, normally not intending to major in physical sciences, on development of ideas in astronomy and what has been learned of nature of universe, including recent discoveries and developments. P/NP or letter grading.

4. Black Holes and Cosmic Catastrophes. (4) Lecture, three hours; discussion, one hour. Essentially nonmathematical course for general UCLA students that discusses black holes and related cosmic catastrophes. White dwarfs, neutron stars, and black holes are compact objects formed in violent events that terminate lives of stars and are associated with some of most energetic and explosive phenomena in astronomy: planetary nebulae and novae (white dwarfs), supernovae, pulsars, galactic X-ray sources, and gamma ray bursts. Supermassive black holes form in nucleus of young galaxies, and gravitational accretion of matter onto black holes powers most energetic objects in universe—quasars. Universe was born in ultimate cosmic explosion—Big Bang—that may have derived its energy from quantum mechanical vacuum. P/NP or letter grading.

5. Life in Universe. (4) Lecture, four hours; discussion, one hour. Preparation: prior introduction to astronomy. Life on Earth and prospects for life elsewhere in context of evolution of universe from simple to complex. Course material primarily from astronomy and biology but includes some chemistry, geology, and physics. Selected topics treated in some depth, but with little or no formal mathematics. P/NP or letter grading.

6. Cosmology: Our Changing Concepts of Universe. (4) Lecture, three hours; discussion, one hour. Exposition of ideas about structure and evolution of universe and its contents. Special and general relativity; black holes, neutron stars, and other endpoints of stellar evolution. Expanding universe, cosmic microwave background radiation, dark matter. Big Bang and inflation. P/NP or letter grading.

7. Astronomy and Media. (4) Lecture, three hours; discussion, one hour; laboratory, one hour. Designed to help nonmajors develop skills to continually learn about science through media. Detailed study of research currently in media, including meteor impacts, greenhouse effect, NASA, cosmology, and extraterrestrial life. Investigation of forces that influence science reporting. P/NP or letter grading.

81. Astrophysics I: Stars and Nebulae. (4) Lecture, three hours; discussion, one hour. Requisites: Mathematics 31A, 31B, and Physics 1A or 1AH. Open to qualified sophomore and upper division students. Survey of our knowledge about stars: their distances, masses, luminosities, temperatures, and interrelations between these parameters. Methods and importance for astrophysics. Variable stars. Planetary and gaseous nebulae. P/NP or letter grading.

82. Astrophysics II: Stellar Evolution, Galaxies, and Cosmology. (4) Lecture, three hours; discussion, one hour. Requisites: Mathematics 31A, 31B, and Physics 1A or 1AH. Recommended: course 81, Physics 1B and 1C (or 1BH and 1CH). Open to qualified sophomore and upper division students. Basic principles of stellar structure and evolution. Red giants, white dwarfs, novae, supernovae, neutron stars, and black holes. Pulsars and galactic X-ray sources. Milky Way galaxy and interstellar medium. Extraga-

lactic astronomy, galaxy clustering, active galactic nuclei, and quasars. Introduction to cosmology: Hubble law, thermal history of Big Bang, and earliest moments of universe. P/NP or letter grading.

88A-88Z. Lower Division Seminars. (2 each) Seminar, two hours. Limited to freshmen. Variable topics; consult *Schedule of Classes* for topics to be offered in specific term. P/NP or letter grading:

88A. Cosmic Evolution. (2) Seminar, two hours. Limited to freshmen. Varied astronomical and physical processes of evolution; discussion of how, over billions of years, basic mechanisms of cosmic evolution have transformed universe from fiery origin at Big Bang into abode for intelligent life. P/NP or letter grading.

Upper Division Courses

115. Statistical Mechanics and Its Application to Astrophysics. (4) Lecture, three hours; discussion, one hour. Requisites: Mathematics 32B, 33A, 33B, Physics 1A, 1B, and 1C (or 1AH, 1BH, and 1CH). Particle distributions, partition functions, black body radiation, Saha equation, degeneracy. Applications to stellar atmospheres, stellar interiors, and interstellar medium. P/NP or letter grading.

117. Radiation and Fluids in Astrophysics. (4) Lecture, three hours. Requisite: course 115. Designed for junior/senior Astrophysics and Physics majors. Emission and absorption of radiation by matter, spectroscopy, spectral lines, and radiative transfer. Hydrodynamics and shock waves. Applications to stars, to interstellar and intergalactic media, and to early universe. P/NP or letter grading.

127. Stellar Atmospheres, Interiors, and Evolution. (4) Lecture, three hours. Recommended requisites: courses 115, 117. Designed for senior Astrophysics and Physics majors. Physical conditions in stellar interiors. Energy production in stars. Stellar evolution from star formation through normally observed stages to white dwarfs, neutron stars, and black holes. Novae, supernovae, other variable stars, chromospheres and coronae of sun and stars. Evolution of binary stars. Analysis of stellar atmospheres. P/NP or letter grading.

140. Stellar Systems and Cosmology. (4) Lecture, three hours. Designed for senior Astrophysics and Physics majors. Properties of star clusters and galaxies, with particular emphasis on Milky Way galaxy. Clusters and superclusters of galaxies. Extragalactic distance scale. Quasars and active galaxies. Topics in cosmology, including expansion of universe, microwave background, galaxy formation from primordial fluctuations, and observational constraints on Big Bang. P/NP or letter grading.

180. Astrophysics Laboratory. (4) Lecture, two hours; laboratory, four hours. Designed for juniors/seniors in Astrophysics, Physics, or related field. Lectures cover statistical methods in astrophysics, one- and two-dimensional random processes, and numerical methods. Laboratory experiments involve radio astronomy, interferometry, narrowband solar imaging, and visual photometry. Emphasis on use of computers for automatic collection of data and for processing two-dimensional astronomical images. P/NP or letter grading.

190. Research Colloquia in Astrophysics. (2) Seminar, two hours. Designed to bring together students undertaking supervised tutorial research in seminar setting with one or more faculty members to discuss their own work or related work in discipline. Led by one supervising faculty member. May be repeated for credit. P/NP or letter grading.

194. Research Group Seminars: Astrophysics. (1) Research group meeting, one hour. Designed for undergraduate students who are part of research group/laboratory. Discussion of research of faculty members or students with regard to understanding methodology in field and/or laboratory equipment. May be repeated for credit. P/NP or letter grading.

196. Research Apprenticeship in Astrophysics. (2 to 4) Tutorial, three hours per week per unit. Limited to juniors/seniors with overall 3.0 grade-point average. Entry-level research apprenticeship for upper division

students under guidance of faculty mentor. May be repeated for credit. Individual contract required. P/NP grading.

197. Individual Studies in Astronomy. (2 to 4) Tutorial, four hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

198. Honors Research in Astrophysics. (2 to 4) Tutorial, 12 hours. Limited to juniors/seniors with minimum overall 3.0 grade-point average. Development and completion of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for credit. Individual contract required. Letter grading.

199. Directed Research or Senior Project in Astronomy. (2 to 4) Tutorial, two hours. Limited to junior/senior Astrophysics and Physics majors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

270. Fundamentals I: Fluids and Dynamics. (4) Lecture, three hours. Dynamics of gaseous flows and collisionless, self-gravitating systems. Basic equations of fluid dynamics, with application to shocks, winds, and accretion. Jeans, Kelvin/Helmholtz, and Rayleigh/Taylor instabilities. Basic equations of stellar dynamics and application to relaxation processes, including virialization, core collapse, and dynamical friction. Letter grading.

271. Fundamentals II: Radiation. (4) Lecture, three hours. Radiative transitions in molecules, atoms, and nuclei. Sources of continuous and line radiation. Transition probabilities for spontaneous and stimulated emission and for absorption. Source function and equation of radiative transfer, with applications. Curve of growth and abundance determinations. Scattering processes, polarized light, masers. Letter grading.

272. Stellar Structure and Evolution. (4) Lecture, three hours. Structure and evolution of stars, stellar energy sources and problems of nucleosynthesis, theory of variable stars, structure of sun from helioseismology and neutrinos. Supernova processes. Binary systems. Letter grading.

273. Stellar Photospheres. (4) Lecture, three hours. Physics of stellar photospheres. Radiative transfer under stellar atmosphere conditions. Continuous and line spectra of stars. Chemical abundances in stars. Stellar winds and stars with extended atmospheres. Letter grading.

274. Galaxies. (4) Lecture, three hours. Galaxy properties: kinematics, mass, morphology, stellar populations; stellar orbits and spiral structure; galaxy formation; galaxy clusters, collisions, and mergers; observations and theory of quasars and active galactic nuclei. Letter grading.

275. Cosmology. (4) Lecture, three hours. Requirement: course 274. Thermal and physical history of universe. Interaction of matter and cosmic microwave background radiation. Study of inhomogeneities in universe from inflationary epoch to current large-scale structure. Letter grading.

276. Instrumentation and Observational Techniques. (4) Lecture, three hours. Telescopes, optical principles, cameras, and spectrographs. Optical detectors; photomultiplier tubes, CCDs. Infrared detectors and arrays. Radio detectors. X-ray and gamma-ray detectors. Interferometry and aperture synthesis. Data analysis techniques. Statistical methods. Letter grading.

277A-277B. Astronomy Research Project. (6-6) Tutorial, to be arranged. Designed for second-year graduate astronomy students. Two-term research project planned in conjunction with faculty adviser on any suitable research topic in astronomy or astrophysics, culminating in written report at end of second term. S/U (277A) and letter (277B) grading.

278. Special Topics in Astronomy. (2 or 4) Seminar, to be arranged. Informal course with lecture/seminar format, focusing on one of set of specific topics in astronomy. S/U (2-unit course) or letter (4-unit course) grading.

279. Seminar: Current Astronomical Research. (2) Seminar, one hour. Astronomy and astrophysics colloquium with lectures on current research by local and visiting researchers. S/U grading.

281. Quantum Mechanics for Astrophysics. (4) Lecture, four hours. Designed for departmental graduate students. Quantum mechanical topics in areas of interest for astrophysics applications. Hydrogen atom, radiative transitions, complex atoms, molecular spectroscopy including electronic, vibrational, and rotational transition, nuclear reaction theory. Letter grading.

M285. Origin and Evolution of Solar System. (4) (Same as Earth and Space Sciences M285.) Lecture, four hours. Dynamical problems of solar system; chemical evidences from geochemistry, meteorites, and solar atmosphere; nucleosynthesis; solar origin, evolution, and termination; solar nebula, hydromagnetic processes, formation of planets and satellite systems. Content varies from year to year. May be repeated for credit. S/U grading.

296. Research Topics in Astronomy. (2) Discussion, two hours. Advanced study and analysis of current topics in astronomy. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. S/U grading.

M297. Research Tutorial: Astroparticle Physics. (2 or 4) (Same as Physics M297.) Tutorial, one hour; discussion, two hours. Required of each graduate student doing research in this field. Seminar and discussion by faculty, postdoctoral fellows, and graduate students on topics of current interest in astroparticle physics. May be repeated for credit. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

596A. Directed Individual Studies. (4 to 10) Tutorial, to be arranged. May be repeated at discretion of department. S/U grading.

596L. Advanced Study and Research at Lick Observatory. (4 to 12) Tutorial, to be arranged. Designed for graduate students who require observational experience, as well as those working on observational problems for their thesis. May be repeated at discretion of department. S/U grading.

599. Ph.D. Research and Writing. (10 to 12) Tutorial, to be arranged. May be repeated at discretion of department. S/U grading.

Physics

Lower Division Courses

1A. Physics for Scientists and Engineers: Mechanics. (5) Lecture/demonstration, four hours; discussion, one hour. Recommended preparation: high school physics, one year of high school calculus or Mathematics 31A and 31B. Enforced prerequisite: Mathematics 31A. Enforced corequisite: Mathematics 31B. Recommended corequisite: Mathematics 32A. Motion, Newton laws, work, energy, linear and angular momentum, rotation, equilibrium, gravitation. P/NP or letter grading.

1AH. Physics for Scientists and Engineers: Mechanics (Honors). (5) Lecture/demonstration, four hours; discussion, one hour. Enforced prerequisite: Mathematics 31A. Enforced corequisite: Mathematics 31B. Recommended corequisite: Mathematics 32A. Enriched preparation for upper division physics courses. Same material as course 1A but in greater depth; recommended for Physics majors and other students desiring such coverage. P/NP or letter grading.

1B. Physics for Scientists and Engineers: Oscillations, Waves, Electric and Magnetic Fields. (5) Lecture/demonstration, four hours; discussion, one hour. Enforced requisites: course 1A, Mathematics 31B. Enforced corequisite: Mathematics 32A. Recommended corequisite: Mathematics 32B. Damped and driven oscillators, mechanical and acoustic waves. Electrostatics: electric field and potential, capacitors, and dielectrics. Currents and DC circuits. Magnetic field. P/NP or letter grading.

1BH. Physics for Scientists and Engineers: Oscillations, Waves, Electric and Magnetic Fields (Honors). (5) Lecture/demonstration, four hours; discussion, one hour. Enforced requisites: course 1AH or 1A, Mathematics 31B. Enforced corequisite: Mathematics 32A. Recommended corequisite: Mathematics 32B. Enriched preparation for upper division physics courses. Same material as course 1B but in greater depth; recommended for Physics majors and other students desiring such coverage. P/NP or letter grading.

1C. Physics for Scientists and Engineers: Electrodynamics, Optics, and Special Relativity. (5) Lecture/demonstration, four hours; discussion, one hour. Enforced requisites: courses 1A, 1B, Mathematics 32A. Enforced corequisite: Mathematics 32B. Recommended corequisite: Mathematics 33A. Ampere law, Faraday law, inductance, and LRC circuits. Maxwell equations in integral and differential form. Electromagnetic waves. Light, geometrical, and physical optics. Special relativity. P/NP or letter grading.

1CH. Physics for Scientists and Engineers: Electrodynamics, Optics, and Special Relativity (Honors). (5) Lecture/demonstration, four hours; discussion, one hour. Enforced requisites: courses 1AH or 1A, 1BH or 1B, Mathematics 32A. Enforced corequisite: Mathematics 32B. Recommended corequisite: Mathematics 33A. Enriched preparation for upper division physics courses. Same material as course 1C but in greater depth; recommended for Physics majors and other students desiring such coverage. P/NP or letter grading.

1Q. Contemporary Physics. (2) Review of current problems in physics, with emphasis on those being studied at UCLA. Significance of the problems and their historical context. P/NP grading.

4AL. Physics Laboratory for Scientists and Engineers: Mechanics. (2) Laboratory, three hours. Enforced prerequisite: course 1A or 1AH. Enforced corequisite: course 1B or 1BH. Experiments on measuring gravity, accelerated motion, kinetic and potential energy, impulse and momentum, damped and driven oscillators, resonance and vibrating strings. Computer data acquisition and analysis. Introduction to error analysis, including distributions and least-squares fitting procedures. Letter grading.

4BL. Physics Laboratory for Scientists and Engineers: Electricity and Magnetism. (2) Laboratory, three hours. Enforced requisites: courses 1A or 1AH, 1B or 1BH. Enforced corequisite: course 1C or 1CH. Experiments on electric forces, fields, and potentials. Magnetic fields. Linear and nonlinear devices. Resistors, capacitors, and inductors. Modern circuits. Geometrical and physical optics. Letter grading.

6A. Physics for Life Sciences Majors: Mechanics. (5) Lecture, three hours; discussion, one hour; laboratory, two hours. Enforced requisites: Mathematics 3A, 3B. Enforced corequisite: Mathematics 3C. Not open for credit to students with credit for course 6AH. Motion, Newton laws, energy, linear and angular momentum, rotation, equilibrium, gravity, biological applications. P/NP or letter grading.

6AH. Physics for Life Sciences Majors: Statics and Dynamics (Honors). (5) Lecture, three hours; discussion, one hour; laboratory, two hours. Enforced requisites: Mathematics 3A, 3B. Enforced corequisite: Mathematics 3C. Not open for credit to students with credit for course 6A. Statics and dynamics of forces, energy, and momentum, with applications to biological and biochemical systems. Physics of states of matter (solids, liquids, and gases) and of surfaces and interfaces as they apply to biological organisms. P/NP or letter grading.

6B. Physics for Life Sciences Majors: Waves, Electricity, and Magnetism. (5) Lecture, three hours; discussion, one hour; laboratory, two hours. Enforced prerequisite: course 6A or 6AH. Not open for credit to students with credit for course 6BH. Mechanical waves, sound, electricity and magnetism, electromagnetic waves, biological applications. P/NP or letter grading.

6BH. Physics for Life Sciences Majors: Sound, Light, and Hydrodynamics (Honors). (5) Lecture, three hours; discussion, one hour; laboratory, two hours. Enforced prerequisite: course 6A or 6AH. Not open for credit to students with credit for course 6B. Sound and electromagnetic waves, interference, diffraction, radioactivity, and hydrodynamics, with applications to biological and biochemical systems. P/NP or letter grading.

6C. Physics for Life Sciences Majors: Light, Fluids, Thermodynamics, Modern Physics. (5) Lecture, three hours; discussion, one hour; laboratory, two hours. Enforced prerequisite: course 6B. Not open for credit to students with credit for course 6CH. Geometrical and physical optics, fluid statics and dynamics, thermodynamics. Selected topics from foundations of quantum mechanics; atomics, nuclear and particle physics; relativity; medical detectors; biological applications. P/NP or letter grading.

6CH. Physics for Life Sciences Majors: Electricity, Magnetism, and Transport (Honors). (5) Lecture, three hours; discussion, one hour; laboratory, two hours. Enforced prerequisite: course 6BH. Not open for credit to students with credit for course 6C. Electrostatics in vacuum and in water. Electric current with applications to electrophysiology. Magnetism, especially NMR. Diffusion and heat flow, with applications to biological and biochemical systems. P/NP or letter grading.

10. Physics. (4) Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course 1A, 1AH, 6A, or 6AH. Special mathematical preparation beyond that necessary for admission to University in freshman standing not required. Topics include planetary motion, Newton laws, gravitation, electricity and magnetism, wave motion, light, sound, and heat, relativity, quantum mechanics, atoms, and subatomic particles. As time permits, development of physical ideas placed in cultural and historical perspective. P/NP or letter grading.

17. Elements of Quantum Mechanics and Statistical Mechanics. (4) Lecture, three hours; discussion, one hour. Enforced prerequisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), Mathematics 32A, 32B. Enforced corequisite: Mathematics 33A. Photons, photoelectric effect, uncertainty principle Bohr atom, Schrödinger equation, hydrogen atom, Gaussian and Poisson distributions, temperature, entropy, Maxwell/Boltzmann distribution, kinetic theory of gases, laws of thermodynamics, black body radiation. P/NP or letter grading.

18L. Modern Physics Laboratory. (4) Lecture, one hour; laboratory, six hours. Enforced prerequisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), 4AL, 4BL, 17. Experiments on radioactivity, scattering, Planck constant, superconductivity, superfluidity. Letter grading.

87. Introduction to Biophysics. (4) (Formerly numbered M88.) Seminar, three hours. Enforced prerequisites: courses 1A, 1B, and 1C, or 1AH, 1BH, and 1CH, or 6A, 6B, and 6C, Chemistry 20A, 20B, Life Sciences 1, 3, Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A. Specific examples of diverse biological design such as scaling of metabolic activity, bone and muscle mass, cell size, cell membranes and pumps, heart and blood circulation, swim bladders, insect vision, magnetic bacteria, etc., studied quantitatively using elementary mathematics and physical principles. P/NP or letter grading.

88. Lower Division Seminar: Current Topics in Physics. (2) Limited to freshmen/sophomores. Intensive exploration of a particular theme or topic based on current research. Consult *Schedule of Classes* for topics to be offered in a specific term. P/NP or letter grading.

98A. Workshop: Numerical Computational Physics. (1) Laboratory, one hour. Introductory presentations on three most common mathematical software packages—Mathematica, Mathcad, and MATLAB. After some familiarization with most common software functions, development of student personal preferences and assessment of advantages and strong points of each by solving problems in computational physics. P/NP grading.

98XA. PEERS Collaborative Learning Workshops for Life Sciences Majors. (1) Laboratory, three hours. Corequisite: associated undergraduate lecture course in physics for life sciences majors. Development of problem-solving skills and intuition in collaborative learning environment. May be repeated three times, but only 1 unit may be applied toward graduation. P/NP grading.

98XB. PEERS Collaborative Learning Workshops for Physical Sciences and Engineering Majors. (1) Laboratory, three hours. Corequisite: associated undergraduate lecture course in physics for physical sciences and engineering majors. Development of problem-solving skills and intuition in collaborative learning environment. May be repeated three times, but only 1 unit may be applied toward graduation. P/NP grading.

Upper Division Courses

105A. Analytic Mechanics. (4) Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), Mathematics 32B, 33A. Corequisite: Mathematics 33B. Newtonian mechanics and conservation laws, gravitational potentials, calculus of variations, Lagrangian and Hamiltonian mechanics, central force motion, linear and nonlinear oscillations. P/NP or letter grading.

105B. Analytic Mechanics. (4) Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), 105A. Relativity with four vectors, noninertial reference frames, dynamics of rigid bodies, coupled oscillators, normal modes of oscillation, vibrating strings, and wave propagation. P/NP or letter grading.

108. Optical Physics. (4) Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), 110B. Interaction of light with matter; dispersion theory, oscillator strength, line widths, molecular scattering. Coherence theory, Kirchhoff formulation of diffraction theory, crystal optics, optical rotation, electro and magneto optical effects. Additional topics of fundamental or current interest. P/NP or letter grading.

110A. Electricity and Magnetism. (4) Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), 131, Mathematics 32B, 33A, 33B. Electrostatics and magnetostatics. P/NP or letter grading.

110B. Electricity and Magnetism. (4) Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), 110A, Mathematics 32B, 33A, 33B. Faraday law and Maxwell equations. Propagation of electromagnetic radiation. Multipole radiation and radiation from an accelerated charge. Special theory of relativity. P/NP or letter grading.

112. Thermodynamics. (4) Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), Mathematics 32B, 33A, 33B. Corequisite: course 115B. Fundamentals of thermodynamics, including first, second, and third laws. Statistical mechanical point of view and its relation to thermodynamics. Some simple applications. P/NP or letter grading.

114. Mechanics of Wave Motion and Sound. (4) Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), 105A, 105B, Mathematics 32B, 33A, 33B. Vibrating systems and wave propagation in gases, liquids, and solids, including elements of hydrodynamics and elasticity. Applications in ultrasonics, low-temperature physics, solid-state physics, architectural acoustics. P/NP or letter grading.

115A. Quantum Mechanics. (4) Lecture, three hours; discussion, one hour. Enforced prerequisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), 17, 105A, 131. Corequisite: course 105B. Classical background. Basic ideas of quantum nature of light, wave-particle duality, Heisenberg uncertainty principle, Bohr atom, physical operators. Schrödinger equation. One-dimensional square well and harmonic oscillator problems. Boundary values. Classical correspondences. Letter grading.

115B. Quantum Mechanics. (4) Lecture, three hours; discussion, one hour. Enforced prerequisites: courses 115A, 131. Formal theory: commutator algebra, Hermitian operators, generalized uncertainty principle, Ehrenfest relations. Three-dimensional problems. Central potentials. Angular momentum. Hydrogen atom. Identical particles and Pauli exclusion principle. Electrons in an electromagnetic field. Letter grading.

115C. Quantum Mechanics. (4) Lecture, three hours; discussion, one hour. Enforced prerequisite: course 115B. Matrix mechanics. Addition of angular momentum. Time-independent and time-dependent perturbation theory. Fermi Golden Rule. Applications. Scattering theory. Letter grading.

116. Electronics. (4) Lecture, three hours; laboratory, three hours. Alternating current circuits, transmission line circuits, transistor and IC circuits to generate, modify, and detect electrical signals, introduction to digital circuits, analysis of noise and methods to reduce its influence in electrical measurements.

117. Electronics for Physics Measurement. (4) Lecture, three hours; laboratory, two hours. Requisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), Mathematics 32B, 33A, 33B. Hands-on experimental course to develop understanding of design principles in modern electronics for physics measurements. Broad introduction to analog and digital electronics from practical viewpoint, followed by examination of typical circuits for scientific instrumentation and study of methods of computer data acquisition and signal processing. P/NP or letter grading.

M122. Introduction to Plasma Electronics. (4) (Same as Electrical Engineering M185.) Lecture, three hours. Requisite: course 110A or Electrical Engineering 101. Senior-level introductory course on electrodynamics of ionized gases and applications to materials processing, generation of coherent radiation and particle beams, and renewable energy sources. Letter grading.

123. Atomic Structure. (4) Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), Mathematics 32B, 33A, 33B. Corequisite: course 115C. Theory of atomic structure. Interaction of radiation with matter. P/NP or letter grading.

124. Nuclear Physics. (4) Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), Mathematics 32B, 33A, 33B. Corequisite: course 115C. Nuclear properties, nuclear forces, nuclear structure, nuclear decays, and nuclear reactions. P/NP or letter grading.

126. Elementary Particle Physics. (4) Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), Mathematics 32B, 33A, 33B. Corequisite: course 115C. Introduction to physics of elementary particles. The four basic interactions: strong, electromagnetic, weak, and gravitational. Properties of baryons, mesons, quarks, and leptons; conservation laws, symmetries and broken symmetries; the Standard Model; experimental techniques; new physics at the new accelerators. P/NP or letter grading.

127. General Relativity. (4) Lecture, three hours; discussion, one hour. Requisites: courses 105B, 110A, 110B, 131. Recommended: courses 115A, 115B, 115C. Introduction to general relativity. Principle of equivalence and curved spacetime, local initial frames, vectors and three-dimensional surfaces in curved spacetime. Schwarzschild metric, perihelion precession, bending of light by sun, and gravitational redshift. Star-system applications, black holes, gravitational waves. Introduction to cosmology, including

Robertson/Walker metric and expanding universe solution to Friedman equations. Dark energy and cosmological constant. P/NP or letter grading.

128. Cosmology and Particle Astrophysics. (4) Lecture, three hours; discussion, one hour. Requisites: courses 115A, 115B, 126. Introduction to cosmology and high-energy particle astrophysics, based on latest developments of both experiment and theory. Special emphasis on unified picture of universe that emerges from particle physics, astronomy, and cosmology. Extensive discussion of unsolved problems and future prospects to help students determine their opportunities in future. Letter grading.

131. Mathematical Methods of Physics. (4) Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), Mathematics 32B, 33A, 33B. Vectors and fields in space, linear transformations, matrices, and operators; Fourier series and integrals. P/NP or letter grading.

132. Mathematical Methods of Physics. (4) Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), 131, Mathematics 32B, 33A, 33B. Functions of a complex variable, including Riemann surfaces, analytic functions. Cauchy theorem and formula, Taylor and Laurent series, calculus of residues, and Laplace transforms. P/NP or letter grading.

140A. Introduction to Solid-State Physics. (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 112. Introduction to basic theoretical concepts of solid-state physics with applications. Crystal symmetry; cohesive energy; diffraction of electron, neutron, and electromagnetic waves in a lattice; reciprocal lattice; phonons and their interactions; free electron theory of metals; energy bands. Letter grading.

140B. Properties of Solids. (4) Lecture, three hours; discussion, one hour. Enforced requisite: course 140A. Elementary discussion of properties of solids. Use of theory of electrons and the lattice to examine properties of semiconductors, metals, and superconductors, together with magnetic and dielectric properties of materials. Properties of noncrystalline solids. Letter grading.

150. Physics of Charged-Particle and Laser Beams. (4) Lecture, three hours; discussion, one hour. Requisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), 110A, 110B, 115A, 115B. Physics of charged-particle and laser beams presented as a unified subject. Basic physics of charged-particle beams, covering relativistic particle motion in electromagnetic fields, transverse focusing, acceleration mechanisms, linear and circular accelerators, and advanced topics. Some fundamentals of laser physics, including gain and broadening mechanisms, linear light optics, laser resonators, and advanced topics and applications. P/NP or letter grading.

M155. Energy in Modern Economy. (4) (Same as Environment M155.) Lecture, three hours. Requisites: courses 1A and 1B (or 6A and 6B), Mathematics 3A and 3B (or 31A and 31B), Statistics 12 or 13. Examination of physics of energy, history of energy development, and role that energy plays in our economy, particularly in transportation and power grid. Prospects for decreasing availability of fossil fuels and impact of global warming on energy development. Current and potential future government and social responses to energy issues. P/NP or letter grading.

160. Numerical Analysis Techniques and Particle Simulations. (4) Lecture, three hours; computer terminals, six hours. Preparation: minimum knowledge of computer programming (Fortran). Requisites: courses 1A, 1B, and 1C (or 1AH, 1BH, and 1CH), 105A, 105B, 110A, 110B. Introduction to field of computer modeling of physical systems using particle models; numerical models and methods, methods of diagnosing results, experience with running interesting physical problems. P/NP or letter grading.

180A. Nuclear Physics Laboratory. (4) Laboratory, four hours. P/NP or letter grading.

180B. Physical Optics and Spectroscopy Laboratory. (4) Laboratory, four hours. P/NP or letter grading.

180C. Solid-State Laboratory. (4) Laboratory, four hours. P/NP or letter grading.

180D. Acoustics Laboratory. (4) Laboratory, four hours. P/NP or letter grading.

180E. Plasma Physics Laboratory. (4) Laboratory, four hours. P/NP or letter grading.

180F. Elementary Particle Laboratory. (4) Laboratory, four hours. P/NP or letter grading.

M180G. Soft Matter Laboratory. (4) (Same as Chemistry M120.) Laboratory, four hours. P/NP or letter grading.

C185. Foundations of Physics. (4) Lecture, three hours. Historical development and philosophical sources of classical and modern physics. Concurrently scheduled with course C285. Letter grading.

187. Senior-Year Research Seminar: Biophysics. (4) Seminar, three hours. Requisites: courses 105A, 110B, 115B, 131, M180G, Chemistry 110A, 153A, Molecular, Cell, and Developmental Biology 100, 104. Seminar on modern molecular biophysics. Current research papers presented in class by students and discussed. At end of seminar, report based on set of research papers assigned by instructor must be submitted. Letter grading.

188. Special Courses in Physics. (4) Lecture, three hours; discussion, one hour. Limited to junior/senior Astrophysics and Physics majors. Departmentally sponsored temporary courses such as pilot courses or those taught by visiting faculty members. May be repeated for credit. P/NP or letter grading.

188L. Special Laboratory Courses in Physics. (4) Lecture, one hour; laboratory, two hours. Limited to junior/senior departmental majors. Departmentally sponsored temporary laboratory courses such as pilot courses or those taught by visiting faculty members. May be repeated for credit. P/NP or letter grading.

190. Research Colloquia in Physics. (2) Seminar, two hours. Designed to bring together students undertaking supervised tutorial research in seminar setting with one or more faculty members to discuss their own work or related work in discipline. Led by one supervising faculty member. May be repeated for credit. P/NP grading.

191. Variable Topics Research Seminars: Physics and Astronomy. (4) Seminar, three hours. Participating research seminar on advanced topics in physics. Reading, discussion, and development of culminating project. Content varies from year to year. May be repeated for credit by petition. P/NP or letter grading.

192. Undergraduate Practicum in Physics. (2 to 4) Seminar, three hours. Limited to juniors/seniors. Training and supervised practicum for advanced undergraduate students. Students assist in preparation of materials and development of innovative programs with guidance of faculty members in small course settings. May be repeated for credit. P/NP or letter grading.

193. Journal Club Seminars: Physics. (2) Seminar, one hour. Limited to undergraduate students. Seminars are linked to speaker-series seminars offered by department on weekly basis. Supplemental reading from literature on speaker's topic, as well as active participation and discussion to understand what kind of questions modern-day physicists actually ask and how they go about answering them. May be repeated for credit. P/NP grading.

194. Research Group Seminars: Physics and Astronomy. (1) Research group meeting, one hour. Designed for undergraduate students who are part of research group/laboratory. Discussion of research of faculty members or students with regard to understanding methodology in field and laboratory equipment. May be repeated for credit. P/NP grading.

196. Research Apprenticeship in Physics. (2 to 4) Tutorial, three hours per week per unit. Limited to juniors/seniors with overall 3.0 grade-point average. Entry-level research apprenticeship for upper division students under guidance of faculty mentor. May be repeated for credit. Individual contract required. P/NP grading.

197. Individual Studies in Physics. (2 to 4) Tutorial, to be arranged. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

198. Honors Research in Physics. (2 to 4) Tutorial, 12 hours. Limited to juniors/seniors with overall 3.0 grade-point average. Development and completion of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for credit. Individual contract required. Letter grading.

199. Directed Research or Senior Project in Physics. (2 to 4) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

201Q. Modern Physics Research Areas. (2) Review of modern physics research areas, with emphasis on those actively pursued at UCLA. S/U grading.

210A. Electromagnetic Theory. (4) Boundary value problems in electrostatics and magnetostatics. Multipole expansions; dielectrics and macroscopic media. Maxwell equations and conservation laws. Wave guides and resonators; simple radiating systems.

210B. Electromagnetic Theory. (4) Electromagnetic potentials and Hertz vectors. Cylindrical waves. Spherical waves. Debye potentials. Multipole radiation. Classical relativistic electrodynamics. Radiation from moving charges.

213A. Advanced Atomic Structure. (4) Group representation theory. Angular momentum and coupling schemes. Interaction of radiation with matter.

213B. Advanced Atomic Structure. (4) n - j symbols, continuous groups, fractional parentage coefficients, n electron systems.

213C. Molecular Structure. (4) Application of group theory to vibrational and electronic states of molecules. Molecular orbital theory. Raman effect. Angular momentum and coupling in molecules.

214A. Advanced Acoustics. (4) Propagation of waves in elastic and fluid media. Reflection, refraction, diffraction, and scattering of waves in fluids. Attenuation mechanisms in fluids.

214B. Advanced Acoustics. (4) Propagation in non-homogeneous fluids and in moving fluids. Radiation pressure, acoustic streaming, and attenuation in large amplitude sound fields. Propagation of sound in liquid helium. Mechanisms resulting in attenuation for elastic waves in solids.

215A. Statistical Physics. (4) Lecture, three hours. Thermodynamics and statistical mechanics with applications. S/U or letter grading.

215B. Nonequilibrium Statistical Mechanics. (4) Lecture, three hours. Probability theory, Markov processes, equations of change, BBGKY hierarchy and its consequences, Boltzmann equation, Chapman/Enskog method, transport coefficients, fluctuation/dissipation theorems, density matrix, H-theorems. S/U or letter grading.

215C. Quantum Statistical Mechanics and the Many Body Problem. (4) Lecture, three hours. Classical methods for interacting systems; quantum field theory techniques in statistical mechanics; Green's function approach; Coulomb gas; imperfect Bose gas; electron/phonon interaction; superconductivity; phase transitions; theory of Fermi liquid. S/U or letter grading.

M215D. Nonequilibrium Statistical Mechanics and Molecular Biophysics. (4) (Same as Chemistry M223C.) Lecture, three hours. Requisites: course 215A, or Chemistry C215B and C223B. Fundamentals of nonequilibrium thermodynamics and statistical mechanics applied to molecular biophysics. S/U or letter grading.

220. Classical Mechanics. (4) Lecture, three hours. Hamilton/Jacobi theory, action-angle variables, classical perturbation theory, and selected topics such as introduction to physics of continuous media and fluids, nonlinear phenomena.

221A-221B-221C. Quantum Mechanics. (4-4-4) Lecture, three hours. S/U or letter grading. **221A.** Fundamentals of quantum mechanics, operators and state vectors, equations of motion. **221B.** Requisite: course 221A. Rotations and other symmetry operations, perturbation theory. **221C.** Formal theory of collision processes, quantum theory of radiation, introduction to relativistic quantum mechanics.

222A-222B-222C. Plasma Physics. (4-4-4) Properties of a Coulomb gas with and without a magnetic field: equilibrium, oscillations, instabilities, fluctuations, collective phenomena, transport properties, and radiation. Description via single-particle orbit theory, magnetohydrodynamics, and kinetic equations of various types.

223. Advanced Classical Mechanics. (4) Requisite: course 220. Topics such as nonlinear mechanics, ergodic theory, mechanics of continuous media.

224. Introduction to the Strong Interaction. (4) Evidence concerning the strong interaction, particularly as exemplified in nucleon/nucleon and pion/nucleon systems. Isospin, scattering matrix, density matrix and polarization, properties of pions, one pion exchange potential, phase shift analysis.

225A-225B. Advanced Nuclear Physics. (4-4) Requisites: courses 221A, 221B. Normally preceded by course 224. Advanced course in structure of complex nuclei, nuclear models, scattering and reactions.

226A-226B-226C. Elementary Particle Physics. (6-6-6) Lecture, four hours. Requisites: courses 221A, 221B, 221C, 230A, 230B (230A, 230B may be taken concurrently). Modern theories of elementary particle physics beginning with symmetry principles and conserved quantities, classic V-A theory of weak interactions, gauge field theories (Abelian and non-Abelian), spontaneous symmetry breaking, $SU(2) \times U(1)$ electroweak interactions of leptons, quarks, W s, Z^0 and γ , quark theory of hadrons and quantum chromodynamics.

226D. Beyond the Standard Model. (4) Lecture, three hours. Requisites: courses 226A, 226B, 226C, 230A, 230B, 230C. Discussion of possible extensions of the current standard model of electroweak and strong interactions, including axions, technicolor, grand unified theories, supersymmetry, supergravity, and superstrings. S/U grading.

226E. Particle Astrophysics: Exploring Earliest and Extreme Universe. (4) Lecture, three and one half hours. Requisites: courses 210A, 210B, 221A, 221B. Recommended: course 226A. Introduction to high-energy astrophysics and discussion of latest developments in both experimentation and theory. Special emphasis on unified picture of universe that emerges from particle physics, astronomy, and cosmology. S/U or letter grading.

230A-230B-230C. Relativistic Quantum Theory. (6-6-6) Lecture, four hours. Requisites: courses 221A, 221B, 221C. Modern quantum field theory, including quantum electrodynamics and quantum chromodynamics, renormalization group methods, path-integral quantization, spontaneous symmetry breakdown, monopoles and other solitons. S/U or letter grading.

230D. Relativistic Quantum Theory. (6) Lecture, four hours. Requisites: courses 221A, 221B, 221C. Modern quantum field theory, including quantum electrodynamics and quantum chromodynamics, renormalization group methods, path-integral quantization, and spontaneous symmetry breakdown. Advanced topics include instantons and other topological defects, large N methods, finite temperature field theory, lattice field theory, effective field theory methods, conformal field theory, and topological aspects of anomalies. S/U or letter grading.

231A. Methods of Mathematical Physics. (4) Lecture, three hours. Not open for credit to students with credit for Mathematics 266A. Linear operators, review of functions of a complex variable, integral transforms, partial differential equations. S/U or letter grading.

231B. Methods of Mathematical Physics. (4) Lecture, three hours. Not open for credit to students with credit for Mathematics 266B. Ordinary differential equations, partial differential equations, and integral equations. Calculus of variations. S/U or letter grading.

231C. Methods of Mathematical Physics. (4) Lecture, three hours. Not open for credit to students with credit for Mathematics 266C. Perturbation theory. Singular integral equations. Numerical methods. S/U or letter grading.

232A-232B. Relativity. (4-4) Special and general theories, with applications to elementary particles and astrophysics.

232C. Special Topics in General Relativity. (4) Lecture, four hours. S/U or letter grading.

233. Introduction to High-Energy Astrophysics. (4) Introductory lectures on modern high-energy astrophysics. High-energy radiation processes. Neutron stars. Pulsars. X-ray sources. Black holes. Supermassive rotators and quasars.

235. Group Theory and Quantum Mechanics. (4) Requisite: course 221A. Group representation theory and applications to quantum mechanics of atoms, molecules, and solids.

M236. Geometry and Physics. (4) (Same as Mathematics M217.) Lecture, three hours. Interdisciplinary course on topics at interface between physics quantum fields and superstrings and mathematics of differential and algebraic geometry. Topics include supersymmetry, Seiberg/Witten theory, conformal field theory, Calabi/Yau manifolds, mirror symmetry and duality, integrable systems. S/U grading.

237A. String Theory. (4) Lecture, four hours. Requisites: courses 221A, 221B, 221C, 230A. Historical introduction to string theory, including classical bosonic string and its symmetries, light cone quantization, covariant quantization, conformal field theory, Polyakov path integral, tree level amplitudes, and loop amplitudes. S/U grading.

237B. String Theory. (4) Lecture, four hours. Requisite: course 237A. Topics may include toroidal compactification, t -duality and d -branes, supersymmetric strings, orbifolds, Calabi/Yau compactifications and physics in four dimensions, and strings at strong coupling and dualities. S/U or letter grading.

241A. Solid-State Physics. (4) Lecture, four hours. Requisites: courses 140A, 140B, 215A, 221A. Symmetry, free electrons, electrons in periodic potential, experimental measurement of band structure and Fermi surface parameters, cohesive energy, lattice vibrations, thermal properties. Letter grading.

241B. Solid-State Physics. (4) Lecture, three hours. Requisite: course 241A. Transport theory with applications, electron/electron interactions. S/U or letter grading.

241C. Solid-State Physics. (4) Lecture, three hours. Requisite: course 241B. Semiconductors, magnetism, phase transitions, superconductivity. S/U or letter grading.

242A-242B. Advanced Solid-State Theory. (4-4) Requisites: courses 241A, 241B, 241C (may be taken concurrently). Many body methods in solid-state physics.

243A-243K. Special Topics in Solid-State Physics. (4 each) Lecture, three hours. S/U or letter grading.

243A. Disordered Systems; **243B.** Magnetic Resonance; **243C.** Phase Transitions; **243D.** Magnetism; **243E.** Superconductivity; **243F.** Macromolecules; **243G.** Semiconductors; **243H.** Optical Interactions; **243I.** Nonlinear Optics; **243J.** Hopping Transport; **243K.** Low-Temperature Physics.

M243L. Condensed Matter Physics of Cells. (4) (Same as Biomathematics M243.) Seminar, four hours. Designed for graduate students. Basic paradigms of condensed matter physics and applications to biophysical modeling. S/U or letter grading.

250. Introduction to Acceleration of Charged Particles. (4) Lecture, three hours. Requisites: courses 210A, 210B, 215A. Principles of charged-particle acceleration, including principles of synchrotrons and storage rings, beam parameter determination, statisti-

cal behavior of beams and beam cooling techniques, synchrotron light sources, colliding beam storage rings, medical accelerators, and free electron lasers.

260. Seminar: Problems in Plasma Physics. (4) Seminar, four hours. S/U or letter grading.

261. Seminar: Special Problems in Theoretical Physics. (4) Seminar, four hours. S/U or letter grading.

262. Seminar: Physics of the Solid State. (2 to 4) Seminar, three hours. S/U or letter grading.

264. Seminar: Advanced Physical Acoustics. (4) Seminar, four hours. S/U or letter grading.

266. Seminar: Propagation of Waves in Fluids. (2 to 4) Seminar, three hours. S/U or letter grading.

268. Seminar: Spectroscopy. (2 to 4) Seminar, three hours. S/U or letter grading.

269A. Seminar: Nuclear Physics. (2 to 4) Seminar, three hours. S/U or letter grading.

269B. Seminar: Elementary Particle Physics. (2 to 4) Seminar, three hours. S/U or letter grading.

269C. Seminar: Accelerator Physics. (2 to 4) Seminar, three hours. Physics principles governing design and performance analysis of particle accelerators, using existing accelerators as examples and emphasizing interplay among design goals, component performance, and operational experience. S/U grading.

280E. Advanced Plasma Laboratory. (4) Lecture, two hours; laboratory, four hours. Requisites: courses M122, 180E. Laboratory experiments on behavior of plasmas in magnetic fields. Study of basic physics of particle motions, distribution functions, and fluid dynamics. Plasma waves and nonlinear phenomena. Advanced probe, microwave and plasma diagnostics.

C285. Foundations of Physics. (4) Lecture, three hours. Historical development and philosophical sources of classical and modern physics. Concurrently scheduled with course C185.

290. Research Tutorial: Plasma Physics. (2 or 4) Three terms required of each graduate student doing research in this field, ordinarily during second or third year. Seminar and discussion by staff and students directed toward problems of current research interest in plasma physics group, both experimental and theoretical. May be repeated for credit. S/U grading.

291. Research Tutorial: Elementary Particle Theory. (2 or 4) Requisites: courses 226A, 230A, 230B. Required of each graduate student doing research in this field, ordinarily during second or third year. Seminar and discussion by staff, postdoctoral fellows, and graduate students. May be repeated for credit. S/U grading.

292. Research Tutorial: Spectroscopy, Low-Temperature, and Solid-State Physics. (2 or 4) Required of each graduate student doing research in these fields, ordinarily during second or third year. Seminar and discussion by staff and students on problems of current research interest in spectroscopy, low-temperature, and solid-state physics. May be repeated for credit. S/U grading.

293. Research Tutorial: Current Topics in Physics. (2) Lecture, one hour. Seminar and discussion by staff and students on current topics in physics, both experimental and theoretical (topics not limited to one field of physics). Strongly recommended for graduate students in physics. May be repeated for credit. S/U grading.

294. Research Tutorial: Accelerator Physics. (2 or 4) Lecture, one hour; discussion, two hours. Required of each graduate student doing research in this field. Seminar and discussion by faculty, postdoctoral fellows, and graduate students on topics of current interest in accelerator physics. May be repeated for credit. S/U grading.

295. Research Tutorial: Solid Earth Physics. (2 or 4) Required (or course 292 if appropriate) of each graduate student doing research in this field, ordinarily in second or third year. Seminar and discussion on solid earth physics. May be repeated for credit. S/U grading.

296. Research Topics in Physics. (2) Advanced study and analysis of current topics in physics. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. S/U grading.

M297. Research Tutorial: Astroparticle Physics. (2 or 4) (Same as Astronomy M297.) Lecture, one hour; discussion, two hours. Required of each graduate student doing research in this field. Seminar and discussion by faculty, postdoctoral fellows, and graduate students on topics of current interest in astroparticle physics. May be repeated for credit. S/U grading.

298. Research Tutorial: Experimental Elementary Particle Physics. (2 or 4) Limited to six students. Required of each graduate student doing research in this field, ordinarily during second or third year. Seminar and discussion by staff and students on current problems in experimental elementary particle physics. May be repeated for credit. S/U grading.

299. Research Tutorial: Nuclear Physics. (2 or 4) Required of each graduate student doing research in this field, ordinarily during second or third year. Seminar and discussion on nuclear physics by staff and students, in both experiment and theory. May be repeated for credit. S/U grading.

M370A. Integrated Science Instruction Methods. (4) (Same as Chemistry M370A and Earth and Space Sciences M370A.) Lecture, two hours; discussion, one hour; laboratory, one hour. Preparation: one introductory lower division year (including laboratory) each of chemistry, life sciences, and physics and at least two Earth science courses, preferably one with field experience. Classroom management, lesson design, assessment, history of science education. S/U or letter grading.

M370B. Integrated Science Instruction Methods. (4) (Same as Chemistry M370B and Earth and Space Sciences M370B.) Lecture, two hours; discussion, one hour; laboratory, one hour. Requisite: course M370A or Chemistry M370A or Earth and Space Sciences M370A. Application of learning theory to science instruction and classroom management, including use of technology, collaborative learning, laboratory safety, ethical issues, field experiences, and professional development. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

490. Scientific Writing. (2) Seminar, 90 minutes. Practical guidelines for improved scientific writing and oral presentation. Writing of several short papers with subsequent analysis in class. Short blackboard and/or viewgraph presentations. Topics vary. S/U grading.

495. Teaching College Physics. (2) Seminar/discussion (five or more one-hour meetings during term, plus intensive training week at beginning of Fall Quarter). Required of all new teaching assistants. Special course for teaching assistants designed to deal with problems and techniques of teaching college physics. Ideas and techniques learned are applied and evaluated in the sections of each teaching assistant. May be repeated for credit. S/U grading.

596. Directed Individual Studies. (2 to 12) Tutorial, to be arranged. May be repeated for credit. S/U grading.

597. Preparation for Master's Comprehensive Examination or Ph.D. Qualifying Examinations. (4) Tutorial, to be arranged. May be repeated twice for credit. S/U grading.

598. Master's Thesis Research and Writing. (4) Tutorial, to be arranged. May be repeated twice for credit. S/U or letter grading.

599. Ph.D. Research and Writing. (4 to 12) Tutorial, to be arranged. May be repeated for maximum of 18 units. S/U grading.

PHYSIOLOGICAL SCIENCE

See Integrative Biology and Physiology

PHYSIOLOGY

David Geffen School of Medicine

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Chairs

Kenneth D. Philipson, Ph.D., *Chair*
Thomas J. O'Dell, Ph.D., *Executive Vice Chair*
John McD. Tormey, M.D., *Vice Chair, Instruction*

Scope and Objectives

Physiology is the science of the functional activities of the human body. This covers a wide range, including observations on humans and experiments on animals and model systems in order to understand principles. Physiology is the science most directly relevant to human medicine in all its specialties and to understanding all environmental factors affecting human life. It is also a pure science of great challenge because of the complexity of its problems and its extensive interaction with mathematical, physical, biochemical, and engineering sciences, as well as with other branches of biology.

Within the prescribed curriculum, students may specialize in cellular and molecular physiology, theoretical and mathematical physiology, and organ systems and integrative phenomena, including neuroscience and behavioral physiology.

In the last survey conducted by the Conference Board of the Associated Research Councils, UCLA's Physiology Department was judged fourth best in the nation in terms of the quality of its faculty. The department offers postdoctoral training in research and welcomes students interested in articulated M.D./Ph.D. programs.

Applicants interested in pursuing graduate study may apply directly to the interdepartmental Molecular, Cellular, and Integrative Physiology Ph.D. Program. See <http://www.mcip.ucla.edu> or UCLA ACCESS to Programs in Molecular, Cellular, and Integrative Life Sciences at <http://www.uclaaccess.ucla.edu>.

Physiology

Upper Division Courses

100. Elements of Human Physiology. (6) Designed for first-year dental students. Major organic body functions. With special supplementation, a suitable introduction to the field for graduate students for whom the 201A, 201B course sequence is too extensive.

199. Directed Research in Physiology. (2 to 4) Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

M210. Molecular and Cellular Mechanisms of Neural Integration. (5) (Same as Neuroscience M230 and Physiological Science M210.) Lecture, four hours; discussion, one hour. Requisite: Neuroscience M202. Introduction to mechanisms of synaptic processing. Selected problems of current interest, including regulation and modulation of transmitter release, molecular biology and physiology of receptors, cellular basis of integration in sensory perception and learning, neural nets and oscillators, and molecular events in development and sexual differentiation. Letter grading.

220. Methods in Cell Physiology. (6) Linear circuit analysis, including admittance, transfer admittance, transfer function, and filters using transform methods. Application of these concepts to electronic analog circuits in lectures and laboratory, with emphasis on operational amplifiers. Applications to electrophysiology include microelectrode amplifiers, voltage clamp and patch clamp techniques, with circuit analysis and noise considerations. Digital electronics cover logic gates, sequential circuits, and A/D and D/A conversion, with introduction to sampling theory.

221. Cell Physiology: Excitability. (6) Requisite: course 220. In-depth coverage of general properties of excitable cells, linear cable properties, nonlinear conductance changes, and generation and propagation of the nerve impulse. Voltage gating and gating currents, as well as relationship between macroscopic conductance and single channel properties discussed in analytical detail using original publications.

M223. Membrane Molecular Biology. (4) (Same as Biological Chemistry M223.) Lecture, two hours; discussion, two hours. Requisite: Biological Chemistry CM253. Advanced course in molecular aspects of membrane physiology and biochemistry covering lipids and physical chemistry of biological membranes; membrane biogenesis and targeting of proteins to membranes; pumps, carriers, and channels; receptors and transmembrane signaling. S/U or letter grading.

298. Current Topics in Physiology. (2 to 4) Lecture, one hour; discussion, one hour. Designed for graduate students. Students read primary literature in a specified area and conduct or participate in discussions on these papers. May be repeated for credit. S/U or letter grading.

596. Directed Individual Study or Research. (2 to 12) Tutorial, to be arranged. S/U grading.

597. Preparation for M.S. Comprehensive Examination or Ph.D. Qualifying Examinations. (2 to 12) Tutorial, to be arranged. S/U grading.

598. Thesis Research for M.S. Candidates. (2 to 12) Tutorial, to be arranged. S/U grading.

599. Dissertation Research for Ph.D. Candidates. (2 to 12) Tutorial, to be arranged. S/U grading.

POLITICAL SCIENCE

College of Letters and Science

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Edmond Keller, Ph.D., *Chair*

Professors

Joel D. Aberbach, Ph.D.
 Richard D. Baum, Ph.D.
 Leonard Binder, Ph.D.
 James D. DeNardo, Ph.D.
 Joshua F. Dienstag, Ph.D.
 Barbara Geddes, Ph.D.
 Franklin D. Gilliam, Jr., Ph.D.
 Miriam A. Golden, Ph.D.
 Timothy J. Groseclose, Ph.D. (*Marvin Hoffenberg Professor of American Politics and Public Policy*)
 Edmond Keller, Ph.D.
 Deborah W. Larson, Ph.D.
 Michael F. Lofchie, Ph.D.
 Susanne Lohmann, Ph.D.
 Barbara J. Nelson, Ph.D.
 Barry O'Neil, Ph.D.
 Gary A. Orfield, Ph.D.
 Karen J. Orren, Ph.D.
 Anthony R. Pagden, Ph.D.
 Carole Pateman, D.Phil.
 Mark A. Peterson, Ph.D.
 Ronald L. Rogowski, Ph.D.
 Michael L. Ross, Ph.D.
 Thomas Schwartz, Ph.D.
 David O. Sears, Ph.D.
 Giulia Sissa, Ph.D.
 Steven L. Spiegel, Ph.D.
 Arthur A. Stein, Ph.D.
 James Tong, Ph.D.
 Marc Trachtenberg, Ph.D.
 Daniel S. Treisman, Ph.D.
 David O. Wilkinson, Ph.D.
 E. Victor Wolfenstein, Ph.D.
 John R. Zaller, Ph.D.

Professors Emeriti

Mattei Dogan, Docteur ès Lettres
 Leonard Freedman, Ph.D.
 Robert S. Gerstein, Ph.D.
 Edward Gonzalez, Ph.D.
 Marvin Hoffenberg, M.A.
 Roman Kolkowicz, Ph.D.
 Andrzej Korbonowski, Ph.D.
 Charles R. Nixon, Ph.D.
 David C. Rapoport, Ph.D.
 Richard N. Rosecrance, Ph.D.
 Barbara L. Sinclair, Ph.D. (*Marvin Hoffenberg Professor Emerita of American Politics and Public Policy*)
 Richard L. Sklar, Ph.D.
 Leo M. Snowiss, Ph.D.
 David A. Wilson, Ph.D.
 Charles E. Young, Ph.D.

Associate Professors

Richard D. Anderson, Jr., Ph.D.
 Kathleen Bawn, Ph.D.
 Michael S.Y. Chwe, Ph.D.
 Scott C. James, Ph.D.
 Jeffrey B. Lewis, Ph.D.
 Kirstie M. McClure, Ph.D.
 Daniel N. Posner, Ph.D.
 Raymond A. Rocco, Ph.D.
 Andrew Sabl, Ph.D.
 Mark Q. Sawyer, Ph.D.
 Michael F. Thies, Ph.D.
 Lynn Vavreck-Lewis, Ph.D.
 Brian D. Walker, Ph.D.

Assistant Professors

Lorrie A. Frasure, Ph.D.
 Leslie N. Johns, Ph.D.
 Robert Trager, Ph.D.

Adjunct Assistant Professor

James A. Desveaux, Ph.D.

Scope and Objectives

The undergraduate major in Political Science aims to provide understanding of basic political processes and institutions as these operate in different national and cultural contexts. It also

covers the interaction between national states, the changing character of the relations between citizens and governments, and the values and criteria by which the quality of political life is judged. The program may be individually focused to serve the needs of the liberal arts major, the student seeking preparation for graduate work in political science, public administration, law, and other professional fields, and the student preparing for specialized roles in political and public organizations.

The graduate program leads to the Ph.D. degree in Political Science (a master's degree may be earned in the process of completing Ph.D. requirements). It is designed to give students a strong foundation in the discipline while enabling them to acquire additional skills for advancing their professional careers.

Undergraduate Study

Political Science B.A.

Political Science Premajor

All students intending to major in Political Science must enroll as Political Science premajors. After completion of preparation for the major courses, they need to petition to enter the major in the Undergraduate Office, 4269A/4269B Bunche Hall.

Preparation for the Major

Required: Four lower division courses from Political Science 10, 20, 30, 40, 50. These lower division courses are requisites to upper division courses and are required in those fields designated as the concentration or distribution field. Students must also take Political Science 6 or 6R. Students who concentrate in Fields I, II, III, or IV may substitute Statistics 10 or 12 for course 6 or 6R.

Students must complete all premajor courses with a 2.0 grade-point average by the time they attain 135 units. Admission to the major is granted only after successful completion of all lower division requirements.

Transfer Students

Transfer applicants to the Political Science major with 90 or more units must complete the following introductory courses prior to admission to UCLA: one statistics course and four courses from political theory, world politics, game theory, American politics, or comparative politics.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Ten upper division courses (40 units) selected from Political Science 104A through 199, each taken for a letter grade. Students are required to maintain a 2.0 overall grade-point average in all upper division political science courses.

Upper division political science courses are organized into five fields: (I) political theory, (II) in-

ternational relations, (III) American politics, (IV) comparative politics, and (V) methods and models.

In fulfilling the requirement of 10 upper division political science courses, students must satisfy the following:

1. A concentration in one field by completing the lower division course and at least four upper division courses in that field
2. A distribution of the lower division course and two upper division courses in each of two other fields (four upper division courses)
3. Two additional elective courses in political science to comprise the total of 10

Field Concentration Requirements

The lower division course is requisite to upper division courses in those fields designated as the concentration field and the two distribution fields for majors. Specific requirements for the field concentration are as follows:

- I. *Political Theory:* Political Science 10 and any four courses in Field I
- II. *International Relations:* Course 20 and any four courses in Field II. Courses 118 and 151C may also be applied toward concentration or distribution in Field II
- III. *American Politics:* Course 40 and any four courses in Field III. Courses 114A through M114D, M115A, 120A, and 121A may also be applied toward concentration or distribution in Field III
- IV. *Comparative Politics:* Course 50 and any four courses in Field IV. Courses 118, 124C, 128A, 128B, 131, 132A, M132B, and 135 may also be applied toward concentration or distribution in Field IV
- V. *Methods and Models:* Courses 6 or 6R (Statistics 10 and related courses may not be substituted), 30, and any four courses from 104A, 104B, M105, M106, 124A, M142D, 149 (collective action; congress, institutions, and collective choice; legislative strategy), 153B, 156D, 166, 169 (political economy of development), 170A, 191B (international negotiation)

Courses 119, 139, 149, 169, and 179 may be applied no more than twice toward the field concentration requirement. No more than three of these courses may be applied toward the major.

Courses 191H, 198, and 199 may not be applied toward either the concentration or distribution requirement.

Political Science majors should be aware that the upper division course requirements in the major (40 units) do not meet the upper division requirement of 60 units for graduation. Additional upper division units must be taken to reach the 60-unit total.

Undergraduate Seminars

Each term the department offers a series of seminars (Political Science 191A through 191E) in each field. The requisites are two up-

per division courses in the field in which the seminar is offered, a 3.25 average at the upper division level in political science, or discretion of the instructor. These courses may be applied toward either the concentration or distribution requirement, and students who qualify are encouraged to take them.

Honors Program

The department honors program is open to seniors and to students who (1) have completed five upper division political science courses (two of which are in one field), (2) have a 3.5 grade-point average in upper division political science courses, and (3) are eligible for College of Letters and Science honors. Students should have substantial experience in writing research papers and take at least one seminar course in the Political Science 191 series before they enter the honors program or course 191H.

Students wishing to qualify for graduation with departmental honors must complete the following: (1) courses 191H and 198, in which a senior thesis is written; (2) eight upper division courses (excluding courses 119, 139, 149, 169, and 179) distributed as follows: four courses in one field and four additional courses, two in each of two other fields; (3) four upper division courses in one or two of the social sciences other than political science.

International Relations Specialization

The undergraduate specialization in International Relations can only be taken jointly with a major in Political Science, and all requirements for the Political Science major must be met by or in addition to meeting the requirements of this program. Students completing the program receive a degree with a major in Political Science and specialization in International Relations. The program is designed to serve the needs of (1) students desiring a general education focused on international affairs and (2) students preparing for graduate work in international affairs, whether in a social science or area study.

The program is also beneficial for (1) students planning careers (in business, law, journalism, or library service) with an international emphasis and (2) those preparing to teach social sciences in the secondary schools. These students should structure their programs primarily to meet the preparation requirements of the professional school or instructional credential of their choice.

Courses in management and administration, and in oral and written communications, ordinarily increase the career options of students in this program.

Preparation for the Specialization

Required: Political Science 20, 50, and two courses from 10, 30, 40; Anthropology 9; Economics 1 and 2, 5, or 100; Geography 3 or 5; History 1A, 1B, and 1C, or any three courses

from 8A, 8B, 8C, 9A, 9C, 9D, M10A, 10B, 11A, 11B; Sociology 1.

Upper Division Requirements

The Political Science major should be completed as follows: any four upper division political science courses in each of Fields II and IV and two additional courses both in Field I or III.

Other required social sciences courses include one course from Anthropology 161, 167, 171, 173Q, 174P, 175R, 175T, 175U, 177, Sociology 179, 182, 183, 186, 187; two courses from Economics 110, 111, 112, 120, 121, 122, 180, 181A, 181B; one course from Geography 110, 121, 125, M128, 133, 140, 181, 182A, 182B, 183, 185, 186, 187; two courses from History 113A, 113B, 114A, 123A, 123B, 137A, 137B, 140C, 144.

Completion of the sixth quarter course (or equivalent as prescribed by the language department), with a grade of C or better, of any modern foreign language is also required. French 6, German 6, Spanish 25, and Russian 6 are most frequently offered in fulfillment of this requirement, but also refer to the offerings listed under African Languages, Asian Languages and Cultures, Germanic Languages, Italian, Near Eastern Languages and Cultures, and Portuguese. Arabic, Chinese, French, German, Japanese, Russian, and Spanish are the languages of widest career utility in international affairs.

Each course must be taken for a letter grade.

Area Focus

Students are advised but not required to concentrate their political science, geography, history, and language courses so as to achieve broad familiarity with one area, such as Africa, East Asia, Europe, Latin America, the Middle East, South Asia, or Southeast Asia.

For further information, contact the Undergraduate Office, 4269A/4269B Bunche Hall.

Political Science Minor

The Political Science minor introduces students to political processes and institutions.

To enter the minor, students must have an overall grade-point average of 2.0 or better and file a petition in the Undergraduate Office, 4269A/4269B Bunche Hall.

Required Lower Division Courses (10 units): Any two lower division political science courses.

Required Upper Division Courses (20 units): Any five upper division political science courses.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/>

gasaa/library/pgmqrqintro.htm. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Political Science offers Master of Arts (M.A.), Candidate in Philosophy (C.Phil.), and Doctor of Philosophy (Ph.D.) degrees in Political Science.

Political Science

Lower Division Courses

6. Introduction to Data Analysis. (5) Lecture, three or four hours; discussion, one hour (when scheduled). Not open for credit to students with credit for course 6R. Introduction to collection and analysis of political data, with emphasis on application of statistical reasoning to study of relationships among political variables. Use of computer as aid in analyzing data from various fields of political science, among them comparative politics, international relations, American politics, and public administration. P/NP or letter grading.

6R. Introduction to Data Analysis—Research Version. (5) Lecture, three or four hours; discussion, one hour (when scheduled). Corequisite: course 50R. Not open for credit to students with credit for course 6. Introduction to collection and analysis of political data, with emphasis on application of statistical reasoning to study of relationships among political variables. Use of computer as aid in analyzing data from comparative politics. P/NP or letter grading.

10. Introduction to Political Theory. (5) Lecture, three hours; discussion, one hour. Exposition and analysis of selected political theorists and concepts from Plato to the present. P/NP or letter grading.

20. World Politics. (5) Lecture, three hours; discussion, one hour. Required of all students concentrating in Field II. Introduction to problems of world politics. P/NP or letter grading.

30. Politics and Strategy. (5) Lecture, three or four hours; discussion, one hour (when scheduled). Introduction to study of strategic interaction in political applications. Use of game theory and other formal modeling strategies to understand politics. P/NP or letter grading.

40. Introduction to American Politics. (5) Lecture, three hours; discussion, one hour. Basic institutions and processes of democratic politics. Treatment of themes such as constitutionalism, representation, participation, and leadership coupled with particular emphasis on the American case. P/NP or letter grading.

50. Introduction to Comparative Politics. (5) Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course 50R. Comparative study of constitutional principles, governmental institutions, and political processes in selected countries. P/NP or letter grading.

50R. Introduction to Comparative Politics—Research Version. (5) Lecture, three or four hours; discussion, one hour (when scheduled). Corequisite: course 6R. Not open for credit to students with credit for course 50. Comparative study of constitutional principles, governmental institutions, and political processes in selected countries, with emphasis on presentation and evaluation of quantitative evidence. P/NP or letter grading.

88A-88D. Lower Division Seminars. (4 each) Seminar, three hours. Limited to freshmen/sophomores. Opportunity to enhance writing, verbal, and reasoning skills. General introduction to a subfield of a major area, or intensive exploration of a particular theme or topic. Variable topics; consult *Schedule of Classes* for topics to be offered in a specific term. May not be repeated for credit except by students who receive a grade of C-, D, or F. P/NP or letter grading. **88A.** Political Theory; **88B.** International Relations; **88C.** Politics; **88D.** Comparative Politics.

Upper Division Courses

104A-104B. Introduction to Survey Research. (4-4) Lecture, three or four hours; discussion, one hour (when scheduled). Prerequisite: course 6. Designed for juniors/seniors. Courses in fundamentals of survey research as a method. **104A.** Sampling theory and methods, writing of questions, questionnaire construction, and interviewing. Attitudes, attitude measurement, and attitude change. Participation in formulation of research problem. **104B.** Prerequisite: course 104A. Conducting a survey. Development of survey questionnaire, designing a sample, collecting interviews, maintaining quality control, and coding interviews for machine tabulation. Performance of computer-aided analysis of some part of data and submission of written report of that research.

M105. Economic Models of Public Choice. (4) (Same as Economics M135.) Lecture, three or four hours; discussion, one hour (when scheduled). Preparation: any lower division political science course. Enforced prerequisite: Economics 11. Designed for juniors/seniors. Analysis of methods and consequences of arriving at collective decisions through political mechanisms. Topics include free-rider problem, voting and majority choice, demand revelation, and political bargaining. P/NP or letter grading.

M106. Economic Models of Political Conflict and Conflict Resolution. (4) (Same as Economics M136.) Seminar, three hours; discussion, one hour. Enforced prerequisite: Economics 11. Prior political science course desirable but not essential. Designed for juniors/seniors. Biological, cultural, and organizational sources of political conflict. Role of threats, promises, commitments. Models of the onset and termination of conflict. Conduct of war: strategy and tactics. P/NP or letter grading.

M107. Women and Politics. (4) (Same as Women's Studies M117.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Introduction to rapidly growing body of empirical and theoretical scholarship on women and politics in both national and international contexts. Topics may include women's movement in the U.S. and globally; women's electoral participation; representation of women in Congress and in legislatures worldwide; women as heads of government and state; feminist critiques of political science; women and human rights; ERA; struggle for suffrage; mothers as political actors; women and the military; women, development, and globalization. May be applied toward Field I, III, or IV. P/NP or letter grading.

Field I: Political Theory

M111A-111B-111C. History of Political Thought. (4-4-4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Exposition and critical analysis of major political philosophers and schools. P/NP or letter grading.

M111A. Ancient and Medieval Political Theory from Plato to Machiavelli. (Same as Classics M121.); **111B.** Early Modern Political Theory from Hobbes to Bentham; **111C.** Late Modern and Contemporary Political Theory from Hegel to the Present.

112A. Democratic Theory. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Critical analysis of selected major authors, issues, and arguments in contemporary democratic theory.

M112B. Invention of Democracy. (5) (Same as Classics M125.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Democracy was invented in ancient Greece. Political form grounded on equality before law, citizenship, and freedom, it came into existence as struggle by "demos," people, aware of its excellence and proud of its power, "kratros." It became only regime capable of including all members of community while disregarding wealth, status, and diverging interests. Examination of history and theory of ancient democracy. P/NP or letter grading.

113A. Problems in 20th-Century Political Theory. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Study and interpretation of theorists who have focused their analyses on social and political problems of 20th century. P/NP or letter grading.

113B. Politics, Theory, and Film. (4) Seminar, four hours. Recommended prerequisite: course 10. Designed for juniors/seniors. Intense and individualized examination of politically significant films with respect to central issues in political theory such as power and truth in light of relevant political theorists. P/NP or letter grading.

114A-114B. American Political Thought. (4-4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading. **114A.** Exposition and critical analysis of American political thinkers from the Puritan period to 1865. **114B.** Exposition and critical analysis of American political thinkers from 1865 to the present.

M114C. African American Political Thought. (4) (Same as Afro-American Studies M114C.) Lecture, three or four hours; discussion, one hour (when scheduled). Intensive introduction to African American political thought, with focus on major ideological trends and political philosophies as they have been applied and interpreted by African Americans. Debates and conflicts in black political thought, historical contest of African American social movements, and relationship between black political thought and major trends in Western thought. P/NP or letter grading.

M114D. African American Freedom Narratives. (4) (Same as Afro-American Studies M114D.) Lecture, three or four hours; discussion, one hour (when scheduled). Historical, psychological, and thematic interpretation of selected narratives and storytelling in African American culture and politics. P/NP or letter grading.

M114E. Malcolm X and Black Liberation. (4) (Same as Afro-American Studies M114E.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Analysis of black radicalism in mid-20th century, with special attention to contribution of Malcolm X and black nationalism to African American liberation movement. P/NP or letter grading.

M115A. Ethics and Governance. (4) (Formerly numbered 115A.) (Same as Human Complex Systems M145 and Public Policy M122.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Study of applied ethics and governance, taking case-based approach, mixing normative and positive perspectives. Is action X morally right or wrong? How do people reason about whether action X is morally right or wrong? How do governance structures influence how people reason about whether action X is morally right or wrong? How can we design governance structures that encourage people to act ethically, contribute to public goods, and lead productive and fulfilled lives? May be applied toward Field I or III. P/NP or letter grading.

M115B. Political Ethics. (4) (Same as Public Policy M126.) Lecture, three or four hours; discussion, one hour (when scheduled). Course M115A is not requisite to M115B. Designed for juniors/seniors. Study of major issues in morality, or lack thereof, of political life. Coverage of both readings in moral and political theory and real-world examples such as Watergate, terrorism, civil rights politics, and presidential campaigns. Topics include basic ethical theory, role-relative ethics, Machiavellian amorality, democratic responsibility and representation, ethics of compromise, dirty hands problems, international ethics. Letter grading.

M115C. Citizenship and Public Service. (4) (Formerly numbered 115C.) (Same as Civic Engagement M115.) Lecture, three or four hours; discussion, one hour (when scheduled). Recommended prerequisite: course 10. Designed for juniors/seniors. Study of ways in which political thinkers have conceived of ideas of citizenship and public service, how these ideas have changed over time, and frameworks for thinking about citizenship in era of markets and globalization. P/NP or letter grading.

M115D. Diversity, Disagreement, and Democracy: Can't We All Just Get Along? (4) (Same as Human Complex Systems M140D.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Can't we all just get along? Study of diversity, disagreement, and democracy. Diversity covers individual differences, cultural differences, and human universals; groupism, factionalism, and identity politics; multiculturalism and one-world ethics. Disagreement includes moral, ideological, and party-political disagreement; resolvable and irresolvable kinds of disagreement; groupthink and group polarization; herding and information cascades. Democracy stands for political mechanisms of information aggregation; political mechanisms to resolve differences, or to keep peace among people with irresolvable differences; emergence and spread of democracy, liberty, and rule of law. Letter grading.

116A. Marxism. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Critical analysis of origins, nature, and development of Marxist political theory. P/NP or letter grading.

116B. Continental Political Thought. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Study of important text in continental political theory, including relationship between politics and reason, skepticism, and political freedom. P/NP or letter grading.

117. Jurisprudence. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Development of law and legal systems; consideration of fundamental legal concepts; contributions and influence of modern schools of legal philosophy in relation to law and government. Letter grading.

118. Political Violence. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of one or several different uses of violence in revolutionary process: demonstrations, mass uprisings, coup d'état, assassination, and terrorism. May be applied toward Field II or IV.

119. Special Studies in Political Theory. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Preparation: one course in Field I. Prerequisite: course 10. Designed for juniors/seniors. Intensive examination of one or more special problems appropriate to political theory. Sections offered on regular basis, with topics announced in preceding term. Courses 119, 139, 149, 169, and 179 may be applied no more than twice toward field concentration requirement. No more than three of these courses may be applied toward major. P/NP or letter grading.

M119A. Modern Receptions of Ancient Political Thought. (4) (Same as Classics M124.) Lecture, three hours. Designed for juniors/seniors. Study of how Western culture has conceived and reinterpreted political thought of ancient Greeks and Romans. Topics include examination of influential case(s) of modern reception of classical antiquity. P/NP or letter grading.

Field II: International Relations

120A. Foreign Relations of U.S. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of factors and forces entering into formation and implementation of American foreign policy, with special emphasis on contemporary problems. P/NP or letter grading.

120B. World Politics and U.S. Foreign Policy after September 11. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Video lectures by leading scholars as well as live lectures and discussion on complex problems such as terrorism, nuclear proliferation, and Arab-Israeli conflict. P/NP or letter grading.

M120C. U.S. Intelligence Agencies in Theory and Practice. (4) (Same as Public Policy M118.) Lecture, three hours; discussion, one hour. Limited to juniors/seniors. Examination of U.S. intelligence agencies from Cold War to present. Particularly in light of 9/11 and Iraq war, few organizations are more important and less understood. Course separates fact from fiction, comparing how intelligence agencies are portrayed in

popular entertainment to how they operate in practice. Fundamentals of intelligence collection (from satellites to spies) and analytic tradecraft; key challenges such as role of ethics in intelligence; performance of U.S. intelligence agencies during Cold War; and intelligence community's ability to adapt to rise of terrorism. Application of general concepts to specific case studies of Cuban missile crisis, 2003 Iraq war, and September 11, 2001, terrorist attacks. Letter grading.

121A. Studies in Formulation of American Foreign Policy. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Study of formation of American foreign policy with respect to individual cases. Consult *Schedule of Classes* for topics to be offered in specific term. P/NP or letter grading.

M121B. Crisis Decision Making in U.S. Foreign Policy. (4) (Same as Public Policy CM117.) Lecture, three or four hours; discussion, one hour (when scheduled). Recommended requisites: courses 120A, 137A, 137B. In-depth look at theory and practice of U.S. foreign policy-making. Assessment of competing theories of international relations and application to specific case studies. Weekly role plays of foreign policymakers and final crisis simulation exercise. Letter grading.

122A. World Order. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 20. Designed for juniors/seniors. Study of problems of international system seen as community capable of cooperation and development. P/NP or letter grading.

M122B. Global Environment and World Politics. (4) (Same as Environment M161.) Lecture, three or four hours; discussion, one hour (when scheduled). Recommended requisite: course 20. Politics and policy of major global environmental issues such as climate change, integrating law, policy, and political science perspectives. P/NP or letter grading.

123A-123B. International Law. (4-4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 20. Course 123A is requisite to 123B. Designed for juniors/seniors. Study of nature and place of international law in conduct of international relations. Letter grading.

124A. International Political Economy. (4) (Formerly numbered 124.) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 20. Designed for juniors/seniors. Study of political aspects of international economic issues. P/NP or letter grading.

124B. Comparative Foreign Economic Policy. (4) (Formerly numbered 129.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of foreign trade, monetary, and investment policies of U.S., Japan, France, and Federal Republic of Germany since 1945. P/NP or letter grading.

124C. Politics of Latin American Economic Development. (4) (Formerly numbered 130.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Interaction of international and domestic factors in political and economic evolution of Latin America. P/NP or letter grading.

125A. Arms Control and International Security. (4) (Formerly numbered 125.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Arms control in context of international security in nuclear age. Nuclear arms race; relationship between deterrence doctrines and nuclear war; roles of technology and ideology; nuclear proliferation; outer space. P/NP or letter grading.

M125B. U.S. National Security Policy. (4) (Same as Public Policy CM123.) Lecture, three hours; outside study, nine hours. Limited to juniors/seniors. Examination of contemporary U.S. national security challenges and how policymakers develop strategies to address them. Exploration of Cold War legacy, development of American national security strategic doctrine, and U.S. foreign policymaking process from 1945 to present. Examination of broad spectrum of issues confronting today's foreign policy leaders, from threats to vital U.S. interests (WMD proliferation and terrorism), to regional

security and economic challenges (Iraq, China), to humanitarian intervention and nation-building (Darfur, Afghanistan). Students draft analytic options memos and deliver oral presentations on how to handle six current national security mini-cases. Provides overview of current challenges and hones student analytic skills to examine these challenges from strategic policy perspective. Letter grading.

126. Peace and War. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 20. Designed for juniors/seniors. Theory and research on causes of war and conditions of peace.

127A-127B. Atlantic Area in World Politics. (4-4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. **127A.** Western Europe. External relations of United Kingdom, West Germany, France, Italy, and other European members of NATO, in regard to European security in context of the Atlantic Alliance. **127B.** U.S. and Europe. Requisite: course 127A. Relations between the U.S. and Western European members of the Atlantic Alliance, in context of U.S./Soviet relations.

128A. U.S./Soviet Relations. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 20. Designed for juniors/seniors. Survey of relations between the U.S. and former Soviet Union from Revolutions of 1917 to collapse of the U.S.S.R. in 1991.

128B. International Relations of Post-Communist Russia. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisites: courses 20, 128A. Designed for juniors/seniors. Survey of foreign policy of post-Communist Russia, with special emphasis on Russia's relations with NATO, the former communist states of East Central Europe, China, and the Commonwealth of Independent States.

129. Diplomacy and War. (4) (Not same as course 129 prior to Winter Quarter 2008.) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 20 or 137A. Designed for juniors/seniors. Analysis of role of diplomacy in great power politics, history of diplomatic institutions, advantages of public and private diplomacy, bilateral and multilateral settings, and theory and practice of deterrence and coercion. Use of game theoretic reasoning and historical analysis. Prior exposure to both useful but not required. P/NP or letter grading.

131. Latin American International Relations. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 20. Designed for juniors/seniors. Major problems of Latin American international relations and organization in recent decades.

132A-M132B. International Relations of Middle East. (4-4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading. **132A.** Requisite: course 20. Contemporary regional issues and conflicts, with particular attention to inter-Arab politics, Arab-Israeli problem, and Persian Gulf area. **M132B.** (Same as Honors Collegium M157.) Role of great powers in Middle East, with emphasis on American, Soviet, and West European policies since 1945.

133. International Relations of Sub-Saharan Africa. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Contemporary regional issues and conflicts; foreign policies of African states; role of external powers.

134. Foreign Policy Decision Making and Tools of Statecraft. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 120A. Designed for juniors/seniors. Contrasts purposive and process models of individual and group decision making. Impact of strategic interaction and situational factors on foreign policy decision making. Implications for policy choice of tools of statecraft (i.e., threats/promises, military/economic/diplomacy). P/NP or letter grading.

135. International Relations of China. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 20. Designed for juniors/seniors. Relations of China with its neighbors

and the other powers, with emphasis on contemporary interests and policies of China vis-à-vis the U.S. and Soviet Union.

136. International Relations of Japan. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 20. Designed for juniors/seniors. Foreign policies of Japan and interests and policies of other countries, particularly the U.S., as they relate to Japan.

137A-137B. International Relations Theory. (4-4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. **137A.** Examination of various theoretical approaches to international relations. P/NP or letter grading. **137B.** Alternative approaches to analysis of international politics and their application to historical and contemporary cases.

138A. International Politics, 1815 to 1914. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Classic period of European great power politics, beginning with peace settlement at end of Napoleonic wars and ending with coming of World War I. P/NP or letter grading.

138B. International Politics, 1914 to the Present. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. First World War, failure of peace settlement, origins of Second World War, Cold War, and post-Cold War period. P/NP or letter grading.

139. Special Studies in International Relations. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisites: two courses in Field II, or course 20 and one course in Field II. Designed for juniors/seniors. Intensive examination of one or more special problems appropriate to international relations. Sections offered on regular basis, with topics announced in preceding term. Courses 119, 139, 149, 169, and 179 may be applied no more than twice toward field concentration requirement. No more than three of these courses may be applied toward major. P/NP or letter grading.

M139B. Nuclear Weapons: Critical Decisions. (4) (Same as Environment M165, Honors Collegium M119, and Public Policy M116.) Lecture, three hours. Examination of critical decisions regarding nuclear weapons, starting with President Roosevelt's decision to build atomic bomb and ending with current policies on containing nuclear proliferation and on avoiding nuclear catastrophe. Letter grading.

Field III: American Politics

140A-140B-140C. National Institutions. (4-4-4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. **140A.** Congress. Study of those factors which affect character of the legislative process and capacity of representative institutions to govern in contemporary society. **140B.** The Presidency. Study of nature and problems of presidential leadership, emphasizing impact of the bureaucracy, congress, public opinion, interest groups, and party system on the presidency and national policy-making. **140C.** Supreme Court. Introduction to American constitutional development and role of Supreme Court as interpreter of the U.S. Constitution. Reading of Supreme Court cases as well as various historical and current commentaries.

M141A-141E. Electoral Politics. (4 each) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading:

M141A. Political Psychology. (4) (Same as Psychology M138.) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. Examination of political behavior, political socialization, personality and politics, racial conflict, and psychological analysis of public opinion on these issues. P/NP or letter grading.

141B. Public Opinion and Voting Behavior. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. Study of character and formation of political attitudes and public opinion. Role of public opin-

ion in elections, relationship of political attitudes to the vote decision, and influence of public opinion on public policy formulation. P/NP or letter grading.

141C. Political Behavior Analysis. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisites: courses 6, 40, 141B. Designed for juniors/seniors. Advanced course in use of quantitative methods in study of political behavior, especially in relation to voting patterns, political participation, and techniques of political action. Students conduct computer-aided analyses of issues and problems treated in course 141B and similar courses. P/NP or letter grading.

M141D. Mass Media and Elections. (4) (Same as Communication Studies M161.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Assessment of manner in which Americans' political beliefs, choices, and actions are influenced by mass media presentations, particularly during election campaigns. Topics include processes of political attitude formation and change, different types of media "effects," and role of the media in the American political process. P/NP or letter grading.

141E. Elections, Media, and Strategy. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 30. Designed for juniors/seniors. Analysis of elections and media, including game-theoretic analysis, Downs spatial model of elections, valence characteristics in elections, campaign finance, endogeneity problems in social sciences, liberal bias in media, industrial organization of news industry, and effects of media on voter decisions. May be applied toward Field III or V. P/NP or letter grading.

142A-142B-142C. Political Parties and Interest Groups. (4-4-4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. **142A.** Political Parties. Organization and activities of political parties in the U.S. Attention to historical development of the parties, nature of party change, campaign functions and electoral role of the parties, membership problems and party activists, political finance, and policy formulation practices. **142B.** Politics of Interest Groups. Systematic investigation of role of political interest groups in governmental process, with attention to internal organization, leadership, and politics of such groups to goals and functions of various types of groups and to strategy and tactics of influence. **142C.** Government and Labor. Labor force and nature of trade union; regulation of labor relations; programs to encourage full employment and to mitigate unemployment; protective labor legislation.

M142D. Understanding Public Issue Life Cycle. (4) (Formerly numbered 142D.) (Same as Public Policy M127.) Lecture, three or four hours; discussion, one hour (when scheduled). Recommended preparation: courses 10, 40, and one course from Economics 1, 2, 5, 11, 100, or 101. Examination of how public issue life cycle is shaped by (1) economic and political incentives of various actors—business, news media, mass public, organized interests, Congress, the president, regulatory agencies, and courts and (2) ideology, cognitive biases, and ethical reasoning. P/NP or letter grading.

143A-143B-143C. Subnational Government. (4-4-4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading. **143A.** American State Government. Requisite: course 40. Examination of governments of states of federal union as major sources of public policy in the U.S., with government of California as principal topic. **143B.** Government of American Cities. Requisite: course 40. Intensive analysis of contemporary urban governance in the U.S. Emphasis on such student participatory activities as fieldwork, research, and gaming of urban politics and policy problems. **143C.** Politics of Global Los Angeles in 21st Century—Globalization, Democracy, and Citizenship in Southern California Region. Study of political transformation of Southern California region. Major themes include (1) globalization, restructuring, and regional development, (2) citizenship, democracy, and regional

governance, (3) effects of globalization processes on contemporary local politics, (4) effectiveness of political structures and electoral politics.

144A-M144B. Ethnic Politics. (4-4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors:

144A. Chicano/Latino Politics. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Preparation: one 140-level course or one upper division course on race or ethnicity from history, psychology, or sociology. Requisite: course 40. Designed for juniors/seniors. Introduction to political economy of racial domination in the U.S., concentrating on study of Mexican origin communities. Emphasis on identifying and explaining historically changing relationship between class, race, and power by studying interaction between state policies and practices, class and racial stratification systems, and cultural codes and modes of ideological discourse in each historical period. Letter grading.

M144B. African American Politics. (4) (Same as Afro-American Studies M144.) Lecture, three or four hours; discussion, one hour (when scheduled). Preparation: one 140-level course or one upper division course on race or ethnicity from history, psychology, or sociology. Requisite: course 40. Course 144A is not requisite to M144B. Designed for juniors/seniors. Emphasis on dynamics of minority group politics in U.S., touching on conditions facing racial and ethnic groups, with black Americans being primary case for analysis. Three primary objectives: (1) to provide descriptive information about social, political, and economic conditions of black community, (2) to analyze important political issues facing black Americans, (3) to sharpen students' analytical skills. P/NP or letter grading.

M144C. Equal Rights and Unequal Education. (4) (Same as Education M186 and Public Policy M186.) Lecture, four hours. Exploration of contradictions between American beliefs about equal opportunity and racial equality and inequalities that exist in public education. Three major topic areas in education as vehicles for understanding philosophical and empirical complexities of issues surrounding equality in American education and life. Examination of issues from legal, sociological, political, and philosophical perspectives. Arguments range from Martin Luther King to Ronald Reagan, and legal cases include Plessy versus Ferguson to Brown versus Board of Education, as well as cases still pending in courts. Letter grading.

145A-145E. Public Law and Judicial Process. (4 each) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. P/NP or letter grading:

145A. Anglo-American Legal System. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. Evolution of English common law courts and their legal system, with emphasis on development of basic concepts of law which were received from that system in U.S. and remain relevant today. P/NP or letter grading.

145B. Constitutional Law—Separation of Powers. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. Constitutional questions concerning separation of powers, federalism, and relationship between government and property. P/NP or letter grading.

145C. Constitutional Law—Civil Liberties. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. Protection of civil and political rights and liberties under constitution. P/NP or letter grading.

145D. Judicial Oversight of Bureaucracy. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. Legal controls of administration action. Substantive and procedural limits on administrative discretion imposed by legislation, executive and judicial agencies, and sources of legal powers of administrative bodies within these limits. P/NP or letter grading.

145E. Constitutional Law—Rights of Accused. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. Constitutional rights of persons suspected, accused, and convicted of crimes, with attention to how protections have changed through history. P/NP or letter grading.

146A-146F. Organization Theory, Public Policy, and Administration. (4 each) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading:

146A. Public Administration and Policy. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. Introduction to processes of policy formation and implementation. Exploration of emergence and performance of government bureaucracies and their role in American political process. P/NP or letter grading.

146B. Bureaucracy and Public Management. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Preparation: familiarity with American government. Requisite: course 40. Designed for juniors/seniors. Nature of bureaucracy in modern government, with emphasis on the U.S.; explanation of why government agencies behave as they do. Focus on real and imagined problems with bureaucratic rule; evaluation of commonly proposed solutions for these problems. Examples from schools, armies, welfare bureaus, regulatory agencies, and intelligence services, among others. P/NP or letter grading.

146C. Governing the Bureaucracy in the U.S. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. Relationship between elected officials and administrators in the U.S., especially efforts of elected and appointed officials to monitor and control behavior of those in "permanent government" (career bureaucrats). P/NP or letter grading.

146D. Theories of Organization and Decision Making. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. Examination of theoretical frameworks for studying public and private bureaucracies, with emphasis on ideologies, values, behavioral patterns, and concepts of organization. P/NP or letter grading.

146E. National Policy Development and Implementation. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. Investigation of complex process of policy development and implementation in the U.S., including roles of federal, state, and local agencies as well as private organizations. Subsections offered on particular policy areas, with topics announced in preceding term. P/NP or letter grading.

146F. Politics, Ethics, and Business. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. Examination of political issues, interests, and institutions that impose constraints on and provide opportunities for business. Ethical issues that arise in external environment of business and its internal operations. Examples of topics include government regulation, product liability, affirmative action, lobbying Congress, exporting hazardous waste to developing countries. P/NP or letter grading.

146G. Social Life of Information. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of how information moves from those who have it to those who need it. Information flows in groups, organizations, and mass public. Analysis of how decision-making structures in groups and organizations shape flow of information and how flow of information influences group and organizational performance. How mass media create a "public issue life cycle." P/NP or letter grading.

147A-147B-147C. American Political Development. (4-4-4) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 40. Designed for juniors/seniors. P/NP or letter grading:

147A. Overview. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Prerequisite: course 40. Designed for juniors/seniors. Introduction to historical development of American politics and ideas and institutions that drive durable change over time. Examination of theories, concepts, and analytical tools at center of developmental inquiry. P/NP or letter grading.

147B. Period Inquiry. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Prerequisite: course 40. Designed for juniors/seniors. Examination of one period in American political history. Critical features fostering stability and change. Discussion of contributions to structure and content of contemporary American politics. Possible periods, Founding, Reconstruction, Progressive Era, New Deal, and Cold War. Consult *Schedule of Classes* for topics to be offered in specific term. P/NP or letter grading.

147C. Institutional Development. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Prerequisite: course 40. Designed for juniors/seniors. Examination of one American political institution and its development over time, or interaction of American politics and some aspect of culture and society. Assessment of broader political environment of politics, isolating points of contact, conflict, and pressure for change. Possible topics include party development, Constitution, business regulation, and politics and religion. P/NP or letter grading.

149. Special Topics in American Government and Politics. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Prerequisites: course 40, two courses in Field III. Designed for juniors/seniors. Intensive examination of one or more special problems appropriate to American politics. Sections offered on regular basis, with topics announced in preceding term. Courses 119, 139, 149, 169, and 179 may be applied no more than twice toward field concentration requirement. No more than three of these courses may be applied toward major. P/NP or letter grading.

Also see course 117

Field IV: Comparative Politics

151A-151B-151C. African Politics. (4-4-4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Letter grading:

151A. Government and Politics of Africa. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Comparative study of government and politics in contemporary Africa, with special attention to state/society relations, interaction of politics and economic development, political institutions, and conflict and conflict resolution. Letter grading.

151B. Political Economy of Africa. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Examination of interactions of economic and political factors in African development, with special attention to political basis of inappropriate economic policy during early post-independence period and change toward a more appropriate economic strategy in recent times. Letter grading.

151C. Special Topics in African Politics. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Consult *Schedule of Classes* for topics to be offered in a specific term. Letter grading.

152A-152B-152C. Government and Politics of West European Countries. (4-4-4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Constitutional and political structure and development of one or more states in Europe, especially Britain, France, or Germany, with particular attention to contemporary problems. P/NP or letter grading. **152A.** Britain; **152B.** France; **152C.** Germany.

153A-153B. Comparative Government and Politics of Western Europe. (4-4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading:

153A. West European Government and Politics. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Prerequisite: course 50. Designed for juniors/seniors. Comparison of constitutional and political structure of West European states, with particular attention to contemporary problems. P/NP or letter grading.

153B. Game-Theoretic Approach to West European Politics. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Course 153A is not requisite to 153B. Designed for juniors/seniors. Uses of elementary game theory to investigate post-World War II Western European politics. Social and political forces, and political institutions. Particular emphasis on study of three West European countries—United Kingdom, France, and Federal Republic of Germany. Consideration of current developments and comparisons with the U.S. P/NP or letter grading.

154A-154B. Government and Politics in Latin America. (4-4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Comparative study of governmental and political development, organization, and practices. P/NP or letter grading. **154A.** States of Middle America. Enforced requisite: course 50 or 50R; **154B.** States of South America.

M154C. Black Experience in Latin America and Caribbean. (4) (Same as Afro-American Studies M154C.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Culture, history, politics, and identity of African Americans in Spanish and Lusophone Caribbean, South America, and Central America. Exploration of issues of identity in context of Afro/Latino migration to U.S. P/NP or letter grading.

155. Advanced Pluralist Democracies. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Main features and basic problems of economically advanced democracies, analyzed in comparative framework, topic by topic. Emphasis on cross-Atlantic comparisons, not only political but also sociological.

156A-156D. Government and Politics of Post-Communist States. (4 each) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. P/NP or letter grading:

156A. Russia. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Intensive study of institutions and political development in Russia, with special attention to legacy of the Soviet Union. P/NP or letter grading.

156B. Eastern Europe. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of institutions and political processes in selected post-Communist states of Eastern Europe. P/NP or letter grading.

156C. Post-Soviet States. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of institutions and political processes in selected former Soviet republics other than Russia. P/NP or letter grading.

156D. Political Economy of Post-Communist Reform. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Focused study of interaction between transitions to democracy and to the market in selected post-Communist countries, with emphasis on development of general theories of political and economic reform. P/NP or letter grading.

157. Government and Politics in the Middle East. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Comparative study of government in the Arab States, Turkey, Israel, and Iran. P/NP or letter grading.

158. Southeast Asian Politics. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Prerequisite: course 50. Designed for juniors/seniors. Survey of political environment in major Southeast Asian states. Use of comparative analysis to address major problems confronting region, including democratization, economic growth, drug trade, deforestation, and security threats. Letter grading.

159A-159B. Government and Politics of China. (4-4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors:

159A. Chinese Revolution and Age of Mao Zedong. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of modern Chinese politics from decline of Manchu dynasty and rise of revolutionary nationalism to death of Mao Zedong, with emphasis on socioeconomic foundations and political dynamics of revolution in modern China.

159B. China in Age of Reform. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Survey of China's political and ideological transformation in post-Mao era. Assessment of impact of changing socioeconomic conditions on revolutionary policies and programs of Chinese Communist Party. Exploration of etiology of 1989 Tiananmen crisis and consequences for China of collapse of Communism in East Europe and the Soviet Union.

160. Government and Politics of Japan. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Prerequisite: course 50. Designed for juniors/seniors. Structure and operation of contemporary Japanese political system, with special attention to domestic political forces and problems.

164. Comparative History of Government from Earliest Times to Present Day. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Recommended prerequisite: course 50. Designed for juniors/seniors. Historical diversity of forms of government: archetypal politics, great empires, major innovations, notable variants. P/NP or letter grading.

165. Islam and Politics. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Religious and spiritual foundations of Islamic legal and political institutions; legitimacy of historical and contemporary Islamic regimes, movements, and ideologies; political strategies of Islamic activism. P/NP or letter grading.

166. Comparative Analysis of Government Institutions. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Comparison of major institutional structures such as presidentialism vs. parliamentarism, unicameralism vs. bicameralism, two-party vs. multiparty systems, federal vs. unitary systems, plurality vs. proportional electoral systems, etc. Method of analysis is rational choice (political actors are assumed to optimize their results given institutional constraints and action of other actors). Result is that institutions affect political outcomes in systematic ways. P/NP or letter grading.

167A. Ideology and Development in World Politics. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Prerequisite: course 50. Designed for juniors/seniors. Comparative study of major modes of political and economic development in the world today. Relations between industrial and nonindustrial societies in light of current debate about imperialism.

167B. Comparative Development and Administration. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Prerequisite: course 50. Designed for juniors/seniors. Analysis of bureaucratic structures and function in the U.S., other industrialized, and less developed countries, primarily at national level. Special attention to methods of comparative analysis and utility of various methods. P/NP or letter grading.

M167C. Political Economy of Development. (4) (Same as International Development Studies M100B.) Lecture, three or four hours; discussion, one hour (when scheduled). Prerequisite: course 50. Designed for juniors/seniors. Political economy approach to puzzle of why some countries are rich and others are poor and why, among latter, some have been able to achieve rapid rates of economic growth and others have not. Explanation and review of logic behind most important arguments that have been advanced to account for differences across countries in rates and levels of economic development. May be applied toward either Field IV or V. Letter grading.

167D. Political Institutions and Economic Development. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Preparation: one statistics course. Designed for juniors/seniors. Data analytic approach to question of why some countries are rich and others are poor, with special attention to evidence about how governments and political institutions affect economic development. May be applied toward either Field IV or V. Letter grading.

168. Comparative Political Analysis. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Prerequisites: two courses in Field IV, or course 50 and one course in Field IV. Designed for juniors/seniors. Major approaches to study of comparative politics. Concepts and methodology of comparative analysis. Letter grading.

169. Special Studies in Comparative Politics. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Preparation: two courses in Field IV. Designed for juniors/seniors. Intensive examination of one or more special problems appropriate to comparative politics. Sections offered on regular basis, with topics announced in preceding term. Courses 119, 139, 149, 169, and 179 may be applied no more than twice toward field concentration requirement. No more than three of these courses may be applied toward major. P/NP or letter grading.

Field V: Methods and Models

170A. Studies in Statistical Analysis of Political Data. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Enforced prerequisite: course 6 or 6R. Designed for juniors/seniors. Use of statistical methods to interpret data and test theories from various fields in political science and use of quantitative evidence in construction of convincing and truthful arguments related to world of politics. Consult *Schedule of Classes* for topics to be offered in specific term. May be applied toward Field II, III, IV, or V. P/NP or letter grading.

171A. Applied Formal Models: Collective Action and Social Movements. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Prerequisite: course 30. Designed for juniors/seniors. How do social and political movements convince people to participate? Consideration of various theoretical perspectives, including game-theoretic, social network, structural, and "identity" approaches, illustrated by case studies. May be applied toward Field III, IV, or V. P/NP or letter grading.

171B. Collective Choice and Majority Rule. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Prerequisite: course 30. Designed for juniors/seniors. How do different ways of counting and casting votes affect political decisions? When can voting rules be manipulated by leaders and voters? Examples from legislative, electoral, and judicial politics. May be applied toward Field III or V. P/NP or letter grading.

171C. Legislative Strategy. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Prerequisite: course 30. Designed for juniors/seniors. How do politicians get policy changes passed by legislatures, city councils, and other voting bodies? Applications of game-theoretic reasoning to common strategies and tactics in legislative settings. May be applied toward Field III or V. P/NP or letter grading.

171D. Negotiation. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Prerequisite: course 30. Designed for juniors/seniors. Study of negotiation and bargaining in different contexts. Experimental exercises with emphasis on various aspects of negotiation, including coalition formation, honesty, and role of agents. May be applied toward Field II or V. P/NP or letter grading.

172. Strategy and Conflict. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Enforced prerequisite: course 30. Designed for juniors/seniors. Intermediate topics in game theory applied to political problems, with special attention to strategic consequences of incomplete information and information asymmetries. P/NP or letter grading.

179. Special Topics in Methods and Models. (4) Lecture, three or four hours; discussion, one hour (when scheduled). Prerequisite: course 30. Designed for juniors/seniors. Intensive examination of one or more special problems related to methods and models in political science. Sections offered on regular basis, with topics announced in preceding term. Courses 119, 139, 149, 169, and 179 may be applied no more than twice toward field concentration requirement. No more than three of these courses may be applied toward major. P/NP or letter grading.

Special Studies

190. Research Colloquia in Political Science. (1) Seminar, one hour. Designed to bring together students undertaking supervised tutorial research in seminar setting with one or more faculty members to discuss their own work or related work in discipline. Led by one supervising faculty member. May be repeated for credit. P/NP grading.

190H. Honors Research Colloquia in Political Science. (1) Seminar, one hour. Designed to bring together students writing departmental honors theses in seminar setting with one or more faculty members to discuss their thesis work in progress. Led by one supervising faculty member. P/NP grading.

191A-191E. Variable Topics Research Seminars for Majors. (4 each) Seminar, three hours. Preparation: two upper division courses in field in which seminar is offered. Limited to junior/senior Political Science majors with 3.25 grade-point average in upper division political science courses. Consult *Schedule of Classes* for topics to be offered in specific term. Reading, discussion, and development of culminating project. May be applied toward distribution or concentration requirement. May be repeated for credit. P/NP or letter grading. **191A.** Political Theory; **191B.** International Relations; **191C.** Politics; **191D.** Comparative Government; **191E.** Methods and Models.

M191DC. CAPP Washington, DC, Research Seminars. (8) (Same as History M191DC and Sociology M191DC.) Seminar, three hours; laboratory, 24 hours. Limited to CAPP Program students. Seminars for undergraduate students in Center for American Politics and Public Policy's program in Washington, DC. Focus on development and execution of original empirical research based on experiences from Washington, DC-based field placements. Study of variety of qualitative methods (observation, interviewing, etc.), with comparison to quantitative analysis. Examination of features of solid and significant research; intensive writing. Letter grading.

191H. Research Design Seminar for Honors Thesis. (4) Seminar, four hours. Preparation: one course in 191 series, 3.5 grade-point average in upper division political science courses, eligibility for Letters and Science honors. Required of all students who wish to write honors thesis. Students define their research topic, select suitable research method, determine appropriate sources of information, prepare research proposal, find thesis director, begin their research, and submit progress reports or preliminary drafts. Class sessions emphasize critical and constructive discussions of students' topics, methods, and problems in research, as well as general consideration of political science research topics and methods of current or continuing interest. May be repeated for credit. Letter grading.

193. Journal Club Seminars: Political Science. (1) Seminar, two hours. Limited to undergraduate students. Discussion of readings selected from current literature of field. Consult *Schedule of Classes* for topics to be offered in specific term. May be repeated for credit. P/NP grading.

194. Research Group Seminars: Political Science. (2) Seminar, three hours. Designed for undergraduate students who are part of research group. Discussion of research methods and current literature in field of research of faculty members or students. May be repeated for credit. P/NP grading.

M194DC. CAPP Washington, DC, Research Seminars. (4) (Same as History M194DC and Sociology M194DC.) Seminar, three hours. Limited to CAPP Program students in Winter Quarter. Seminars for undergraduate students in Center for American Politics and Public Policy's program in Washington, DC. Focus on development and execution of original empirical research based on experiences from Washington, DC-based field placements. Study of variety of qualitative methods (observation, interviewing, etc.), with comparison to quantitative analysis. Examination of features of solid and significant research; intensive writing. Letter grading.

195. Community or Corporate Internships in Political Science. (2 or 4) Tutorial, to be arranged. Preparation: 3.0 overall grade-point average. Limited to juniors/seniors. Supervised jointly by Center for Community Learning and undergraduate studies committee faculty members. Further supervision to be provided by organization for which student is doing internship. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for maximum of 16 units. No more than 8 units may be applied toward major; units applied must be taken for letter grade. May not be applied toward concentration or distribution requirements. Individual contract with supervising faculty member required. P/NP or letter grading.

M195DC. CAPP Washington, DC, Internships. (4) (Same as History M195DC and Sociology M195DC.) Tutorial, four hours. Limited to junior/senior CAPP Program students. Internships in Washington, DC, through Center for American Politics and Public Policy. Students meet on regular basis with instructor and provide periodic reports of their experience. Individual contract with supervising faculty member required. P/NP grading.

198. Honors Research in Political Science. (1 to 4) (Formerly numbered 198A.) Tutorial, two hours. Prerequisite: course 191H. Limited to juniors/seniors. Development and completion of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for credit. Individual contract required. Letter grading.

199. Directed Research in Political Science. (2 to 8) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for maximum of 16 units. Individual contract required. P/NP or letter grading.

Graduate Courses

Formal Theory and Quantitative Methods

200A. Statistical Methods I. (4) Lecture, three hours. Corequisite: course 200AL. Introduction to statistical analysis of political data. Methods of data analysis, estimation, and inference. Letter grading.

200AL. Statistical Methods Laboratory I. (4) Laboratory, three hours. Corequisite: course 200A. Letter grading.

200B. Statistical Methods II. (4) Lecture, three hours. Recommended preparation: knowledge of elementary calculus. Prerequisites: courses 200A, 200AL. Applications of multiple regression in political science. S/U or letter grading.

200C. Statistical Methods III. (4) Lecture, three hours. Preparation: knowledge of elementary calculus. Prerequisites: courses 200A, 200AL, 200B. Statistical modeling of political processes. Topics include simultaneous equations models, discrete choice models, time-series models. S/U or letter grading.

200D. Quantitative Methods in Politics. (4) Seminar, three hours. Preparation: knowledge of calculus and matrix algebra. Recommended prerequisite: course 200C. Designed to build on foundations set in course 200C. Focus on logical and mathematical structure underlying some statistical methods that are frequently used in political science. Emphasis on understand-

ing structure of the models rather than on gaining added experience using them to analyze data. Applied data analysis. Letter grading.

200E. Advanced Topics in Quantitative Methods. (4) Seminar, three hours. Topics vary each year and have included instrumental variables principal components and scaling, models of selection, models of duration, ecological inference, and hierarchical models. Student-led presentations on relevant statistical theory and applications. Monte Carlo simulations and replications of well-known studies used to demonstrate how various models work and how they are applied in practice. S/U or letter grading.

201A. Introduction to Formal Political Analysis. (4) Seminar, three hours. Survey of formal political theory to enhance literacy and provide analytical tools without presupposing mathematical background. Model building, collective goods, unanimity and the social contract, voting rules, paradoxes and impossibility theorems, stability, individual liberty and decentralization, strategic manipulation representation, vote trading.

201B. Theory of Collective Choice. (4) Seminar, three hours. Recommended preparation for political science students: course 201A. Open to any student of politics, economics, philosophy, or mathematics with ability for deductive reasoning. Introduction to abstract, deductive study of voting systems and other collective-choice processes. Axiomatic method applied to politics and political economy, concept of rationality, and agenda control, choice-set or solution concepts.

202. Mathematics for Political Science. (4) Lecture, three hours. Preparation: working knowledge of high school algebra. Survey of mathematical methods useful in political science. Topics include differential and integral calculus, differential equations, optimization, and linear algebra.

203A. Economic Theory and Methods for Political Science I. (4) Discussion, three hours. Preparation: knowledge of elementary calculus. Introduction to techniques of economic analysis and survey of major topics in formal political economy. Investigation of models of regulation, trade protection, collective bargaining, and economic growth as time permits.

203B. Economic Theory and Methods for Political Science II. (4) Discussion, three hours. Requisite: course 203A. Continuing survey of microeconomic techniques used in formal political science, with focus on market failures and on modeling individual choice in nonmarket situations. Specific topics include externalities, public goods and allocation mechanisms, collective action, spatial models, structure-induced equilibrium, and information asymmetries.

204. Game Theory in Politics. (4) Seminar, three hours. Survey of game theory, with emphasis on utilizing mathematical models to understand political and economic phenomena. Applications concern political participation, public goods, legislatures, industrial regulation, bureaucracies, interest groups, and party competition. Designed to help students become informed consumers of game-theoretical literature in political science.

M208B. Topics in Applied Game Theory. (4) (Same as Economics M215.) Lecture, three hours. Preparation: calculus or introductory probability. Designed for graduate economics and political science students. Survey and applications of major solution concepts to models of bargaining, oligopoly, cost allocation, and voting power. S/U or letter grading.

M208D. Multivariate Analysis with Latent Variables. (4) (Same as Psychology M257 and Statistics M242.) Lecture, three hours. Introduction to models and methods for analysis of data hypothesized to be generated by unmeasured latent variables, including latent variable analogues of traditional methods in multivariate analysis. Causal modeling: theory testing via analysis of moment structures. Measurement models such as confirmatory, higher-order, and structured-means factor analytic models. Structural equation models, including path and simultaneous equation models. Parameter estimation, hypothesis testing, and other statistical issues. Computer implementation. Applications. S/U or letter grading.

M208E. Bayesian Econometrics. (4) (Same as Economics M232A.) Lecture, three hours. Requisites: Economics 231A, 231B. Subjective probability, introduction to decision theory, Bayesian analysis of regression, sensitivity analysis, simplification of models, criticism. May be repeated for credit. S/U or letter grading.

209. Special Topics in Formal Theory and Quantitative Methods. (4) Seminar, three hours. S/U or letter grading.

Political Theory

210A-210B. Introduction to Political Theory. (4-4) Lecture, three hours. Exploration of major texts and issues in political theory. **210A.** Classical and Medieval Formulations from Plato through Aquinas; **210B.** Early Modern Period from Machiavelli through the Enlightenment.

212. Seminar: Political Theory. (4) Seminar, three hours. S/U or letter grading.

214. Political Theory in Transnational Context. (4) Seminar, three hours; discussion, one hour (when scheduled). Critical analysis of selected text from postcolonial, spatial, feminist, postmodern, and post-structuralist theories that assess impact of processes of globalization on such major concepts and problems of traditional social and political theory as sovereignty, citizenship, rights, community, representation, and democracy. S/U or letter grading.

215. Liberalism and Its Critics. (4) Seminar, three hours; discussion, one hour (when scheduled). Examination of works of one or more major contemporary liberal theorists (Rawls, Dworkin, Habermas, Nussbaum, etc.) in light of alternatives which have been proposed to the liberal position (communitarianism, post-structuralism, group rights theories, etc.). S/U or letter grading.

M216. Toleration, Pluralism, and Diversity. (4) (Same as Public Policy M248.) Seminar, three hours. Prior experience in political or legal theory helpful. Exploration of both abstract concepts of toleration and contemporary disputes. S/U or letter grading.

217. Selected Texts in Political Theory. (4) Seminar, three hours. Critical examination of major texts in political theory, with particular attention to their philosophical system, their relations to contemporary political and intellectual currents, and importance of system for present-day political analysis. S/U or letter grading.

218. Selected Topics in Political Theory. (4) Seminar, three hours. Critical examination of major problem in political theory. S/U or letter grading.

219. Workshop: Political Theory. (4) Discussion, three hours. S/U or letter grading.

International Relations

220A. International Relations Core Seminar I. (4) Seminar, three hours. Introduction to international relations theory: main schools of thought, methods of analysis, and research styles. Letter grading.

220B. International Relations Core Seminar II. (4) Seminar, three hours. Enforced requisite: course 220A. Further analysis of academic work in international relations and introduction to design of research project in this area. Letter grading.

220C. International Relations Research Seminar. (4) Seminar, three hours; tutorial meetings, to be arranged. Enforced requisites: courses 220A, 220B. Design, implementation, and presentation of research project in international relations within combination of seminar and tutorial settings. Letter grading.

222. Seminar: Strategic Interaction. (4) Seminar, three hours. A strategic move influences the other person's choice by affecting his expectations of how we will behave. Discussion of theories of deterrence, coercive diplomacy, crisis management, war termination, and negotiation. Use of various theoretical approaches to explaining strategic interaction, including psychology, bargaining theory, and game theory.

223. Politics and Strategies of Modern War. (4) Seminar, three hours. Analysis of various national security problems in both their military/technical and political dimensions. Letter grading.

225. American Foreign Policy. (4) Discussion, three hours. Discussion of approaches used to explain foreign policy-making at individual, small group, bureaucratic, and domestic politics levels. Application to selected cases in American foreign policy.

226. Making of American Foreign Policy. (4) Seminar, three hours. Intensive analysis of policy formulation process and substance of selected contemporary problems in foreign policy. Political and institutional factors affecting foreign policies; analysis of policy options. S/U or letter grading.

227. Foreign Policy Process. (4) Seminar, three hours. Requisites: courses 120A, 220A, 220B. Political science and policy science approaches to national foreign policy process, with primary focus on formulation and implementation of American foreign policy. S/U or letter grading.

230. Contending Perspectives on International Political Economy. (4) Discussion, three hours. Survey of various theoretical approaches to international political economy.

231. International Political Economy I. (4) Seminar, three hours. Interaction between international trade and investment and domestic political economics of both industrialized and industrializing societies.

232. International Political Economy II. (4) Seminar, three hours. Designed to develop Ph.D. students' skills in setting up and solving simple institutional design, political economy macro, signaling, and participation models, as well as two-level game models of domestic politics and international conflict and cooperation, with emphasis on applications in international political economy and comparative politics.

233A-233B-233C. Political Economy Workshops (4-4-4). Discussion, two hours. Preparation: successful completion of major field examinations. Workshops for students writing or preparing to write dissertations. Reading and discussion of research in progress presented by UCLA faculty, visiting scholars, and advanced graduate students. Research paper of publishable length and quality required. S/U or letter grading.

234A-234B-234C. Workshops: National Security, Foreign Policy, and International Relations (0-0-12). Discussion, two hours. Preparation: successful completion of major field examinations. Course 234A is requisite to 234B, which is requisite to 234C. Courses must be taken in sequence. Workshops for students preparing for or working on dissertations. Reading and discussion of research in progress presented by UCLA faculty, visiting scholars, and advanced graduate students. Major research paper required. In Progress (234A, 234B) and letter (234C) grading.

239. Selected Topics in International Relations. (4) Seminar, three hours. S/U or letter grading.

Comparative Politics

240A-240B. Seminars: Comparative Politics. (4-4) Seminar, three hours. Course 240A is not requisite to 240B. Letter grading. **240A.** Survey of ideas and approaches that have been historically important in field of comparative politics, with selection of theories and methodologies that have comprised field over time. **240B.** Survey of contemporary research approaches and problems in field of comparative politics, with a range of theories and methodologies used by practitioners in the field.

241. African Politics. (4) Seminar, three hours. Survey of contemporary research approaches and problems in African politics. S/U or letter grading.

242. Chinese and East Asian Politics. (4) Seminar, three hours. Survey of contemporary research approaches and problems in Chinese and East Asian politics. S/U or letter grading.

243. Japanese and Western Pacific Politics. (4) Seminar, three hours. Survey of contemporary research approaches and problems in Japanese and Western Pacific politics. S/U or letter grading.

244. Latin American Politics. (4) Seminar, three hours. Survey of contemporary research approaches and problems in Latin American politics. S/U or letter grading.

245. Middle Eastern Politics. (4) Seminar, three hours. Survey of contemporary research approaches and problems in Middle Eastern politics. S/U or letter grading.

246A. Western European Politics. (4) Seminar, three hours. Survey of contemporary research approaches and problems in Western European politics. S/U or letter grading.

246B. Political Development of Modern Europe. (4) Seminar, three hours; discussion, one hour (when scheduled). Principal phases of political development from high feudalism to the present, together with theories of causation.

247. Politics of Soviet Union and Post-Soviet Region. (4) Seminar, three hours. Survey of contemporary research approaches and problems in Soviet Union and post-Soviet region politics. S/U or letter grading.

247A. Evolution of Soviet and Russian Politics. (4) Seminar, three hours; discussion, one hour (when scheduled). Discussion seminar surveying political evolution of Soviet Union and its transformation.

247B. Domestic Context of Russian Foreign Policy. (4) Seminar, three hours. Examination of domestic social, political, bureaucratic, and organizational sources of Russian foreign and strategic policy. S/U or letter grading.

248. South Asian Politics. (4) Seminar, three hours. Survey of contemporary research approaches and problems in South Asian politics. S/U or letter grading.

251. Political Economy of Economic Reform. (4) Discussion, three hours. Some familiarity with economics helpful. Principal political and economic arguments for economic reform and consideration of political issues that arise from this process. Letter grading.

252. Parties and Party Systems. (4) Seminar, three hours; discussion, one hour (when scheduled). Theories and practices of political parties, party systems, and elections in comparative perspective.

253. Political Change in Communist Systems. (4) Discussion, three hours. Examination of political context and consequences of structural reform in Communist systems; theories of post-Leninist political pluralization and convergence.

254A-254B. Institutions and Comparative Politics. (4-4) Seminar, three hours; discussion, one hour (when scheduled):

254A. Comparative Institutional Analysis. (4) Seminar, three hours; discussion, one hour (when scheduled). Use of advances of rational choice theory and new institutionalism to compare and analyze major institutional structures, including presidentialism vs. parliamentarism, unicameralism vs. bicameralism, two-party vs. multiparty systems, cadre vs. mass parties, and plurality vs. proportional electoral systems.

254B. Political Institutions, Delegation, and Policy-Making. (4) Seminar, three hours; discussion, one hour (when scheduled). Analysis of political foundations of policy-making. Characterization of democratic institutions as a series of delegations, from voters to elected officials, within parties and legislatures, and from elected politicians to unelected bureaucrats. Examination of implications of different institutional designs for how those delegations are made and controlled.

255. Seminar: Political Economy of Developing Countries. (4) Seminar, three hours. Interdisciplinary seminar directed toward comparative analysis of political development and modernization. S/U or letter grading.

256. External Sources of Domestic Politics. (4) Discussion, three hours. Theoretical and historical studies of impact of war and trade on domestic cleavages, policy, and institutions. S/U or letter grading.

257. Labor and Working-Class Politics. (4) Discussion, three hours. Questions and topics on comparative labor and working-class politics. S/U or letter grading.

259. Selected Topics in Comparative Politics. (4) Discussion, three hours. Critical examination of major problem in comparative politics. S/U or letter grading.

American Politics

260A. Survey Course in American Politics: Political Parties and Electoral Process. (4) Discussion, three hours. S/U or letter grading.

260B. Survey Course in American Politics: American Political Institutions. (4) Discussion, three hours. S/U or letter grading.

M261A. Proseminar: Political Psychology. (4) (Same as History M236A and Psychology M228A.) Seminar, three hours. Introduction to political psychology: psychobiography, personality and politics, mass attitudes, group conflict, political communication, and elite decision making.

261B. Mass Attitudes and Political Behavior. (4) Seminar, three hours. Prerequisite: course 141B or 260A. Analysis of development and change of political attitudes in mass publics and their relationship to voting, protest, and violence. S/U or letter grading.

261C. Political Communication. (4) Discussion, three hours. Broad survey of research bearing on role of mass media in the American political process. Topics include theories of persuasion, evolution of "media effects" research, reporting and advertising as determinants of election outcomes, adversarial versus deferential journalism, and analyses of media bias.

M261D. Seminar: Political Psychology. (4) (Same as Psychology M228B.) Discussion, three hours. Prerequisite: course M261A or Psychology 220A. Examination of political behavior, political socialization, racial conflict, mass political movements, and public opinion. S/U or letter grading.

M261E. Critical Problems in Political Psychology. (4) (Same as Psychology M228C.) Discussion, three hours. S/U or letter grading.

262. Political Parties. (4) Seminar, three hours. Critical examination of literature on party systems and organization. Special attention to political functions, electoral campaigns, and party cadres. S/U or letter grading.

264. Politics and Society. (4) Seminar, three hours. Application of selected classical and contemporary sociological theories to politics. S/U or letter grading.

265. Politics and Economy. (4) Discussion, three hours. Analysis of theoretical and practical relationships between economic organization and governmental institutions. Development and political implications of market system, banking and finance, corporate enterprise, and organized labor. S/U or letter grading.

266. Group Theories of Politics. (4) Discussion, three hours. Critical appraisal of "group theory" approaches to study of political decision making, with special attention to empirical research problems and findings. S/U or letter grading.

268. Seminar: Political and Electoral Problems. (4) Seminar, three hours. Preparation: two graduate courses in politics. S/U or letter grading.

M268B. Electoral Democracy: Theory and Behavior. (4) (Same as Public Policy M246.) Seminar, three hours. Examination of both empirical and normative questions from rich variety of perspectives for scholars in all subfields of political science as well as policy students and others interested in these issues. Consideration of topics fundamental to both democratic theory and study of American politics—public opinion; nature and purpose of elections; representation; parties; and purpose of democracy as whole—through both classic political theory treatments and modern research in American political behavior. Letter grading.

269. Seminar: Political Behavior. (4) Seminar, three hours. S/U or letter grading.

270. Legislative Behavior. (4) Seminar, three hours. Analysis of major approaches to study of representative institutions, with special emphasis on assumptions, concepts, methods, and theoretical implications associated with each approach. S/U or letter grading.

271. Executive Politics and Presidency. (4) Seminar, three hours. Analysis of executive organization and leadership, with emphasis on American Presidency. Special attention to theories of organization and personality and relationship between executive and other institutions and groups. S/U or letter grading.

272. Political Environment of Federal Executive. (4) Discussion, three hours. Examination of political environment of federal executive in the U.S. Special attention to executive/legislative relations. S/U or letter grading.

273. American Political Development. (4) Discussion, three hours. National political institutions in historical perspective, theories of state building, state societal relations, political culture. S/U or letter grading.

275. Seminar: American Political Institutions. (4) Seminar, three hours. S/U or letter grading.

281. Public Policy Studies. (4) Seminar, three hours. Systematic analysis of nature and scope of public policy and its programmatic implications. Special emphasis on government organizations and process, as well as types of government intervention and stages of policy process. Substantive focus primarily on American public policy and analysis. S/U or letter grading.

284. Seminar: Bureaucracy and Organization. (4) Seminar, three hours. Exploration of topics in analysis of public and private bureaucracies and organizational theory. Topics include empirical theories of bureaucratic behavior; bureaucratic growth; bureaucratic behavior and political culture; organizational structures and strategies; and function of executive. S/U or letter grading.

Race, Ethnicity, and Politics

M287A-M287B. Immigration, Racial Change, and Education in 21st-Century Metropolis. (4-4) (Same as Education M289A-M289B, Public Policy M289A-M289B, and Sociology M290A-M290B.) Seminar, four hours. Examination of metropolitan American society and institutions at beginning of 21st century. Consideration of best available information on patterns of settlement, changing functions of urban space and institutions, and issues of opportunity linked to urban structure in society facing unprecedented demographic change that will end primarily European domination of our society by mid-century, creating democracy with no racial or ethnic majority. How this demographic transition and postindustrial transformation of urban functions and space interact to shape opportunity and inequality. Vast economic transformations, brought about by globalization of workplace and dramatic decline of industrial employment in advanced nations, not only greatly raise stakes on creating equal opportunity but also cut off what were previously extremely important parts of intergenerational mobility. In Progress (M287A) and letter (M287B) grading.

289A. Approaches to Study of Race, Ethnicity, and Politics. (4) Seminar, three hours. Analysis of alternative theoretical, methodological, and empirical approaches to study of race, ethnicity, and politics. S/U or letter grading.

289B. Current Research on Race, Ethnicity, and Politics. (4) Seminar, three hours. Exploration of current research on race, ethnicity, and politics. S/U or letter grading.

Special Studies

290. Modern Political Economy. (4) Discussion, three hours. Discussion of implications for understanding politics of thinking of politicians, bureaucrats, producers, consumers, and nations as utility maximizers. Topics include microfoundations for macro models, forms of political participation, state, government regulation, growth of government, bureaucracy elections, public policy, inflation. S/U or letter grading.

M291A-M291B. Social Theory and Comparative History. (4-4) (Same as History M203A-M203B and Sociology M296A-M296B.) Seminar, three and one-half hours every other week. Introduction to historically rooted social theory and theoretically sensitive history, following program of Center for Social Theory and Comparative History. Each course may be taken independently for credit. S/U or letter grading.

292A-292B. Introduction to Political Inquiry. (4-4) Seminar, three hours; discussion, one hour (when scheduled). S/U or letter grading. **292A.** Problems of Scientific Inquiry and Normative Discourse; **292B.** Research Design. Requisite: course 292A. Major conceptual frameworks and approaches to political science.

293. Great Ideas in Social Sciences. (2) Seminar, two hours. Vehicle for faculty and visitors to teach research seminars of variable length. Special training opportunities on advanced quantitative methods, including complexity theory, agent-based modeling, experimental economics, social cognitive neuroscience, and evolutionary psychology, to be offered at irregular intervals. May be repeated for credit. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Teaching Political Science. (4) Seminar, to be arranged. Seminar in teaching techniques, including evaluation of each student's own performance as a teaching assistant. Normally to be taken by all new teaching assistants in first term of their assistantships. May be taken only in term in which students are teaching assistants. May not be applied toward M.A. or Ph.D. course requirements. S/U grading.

501. Cooperative Program. (2 to 8) Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. Directed Individual Study or Research. (2 to 4) Tutorial, to be arranged. May be applied only three times toward minimum course requirement in first two years. May be repeated. S/U or letter grading.

597. Preparation for Ph.D. Qualifying Examinations. (2 to 12) Tutorial, to be arranged. May be repeated. S/U grading.

599. Research for and Preparation of Ph.D. Dissertation. (2 to 12) Tutorial, to be arranged. May be repeated. S/U grading.

PSYCHIATRY AND BIOBEHAVIORAL SCIENCES

David Geffen School of Medicine

UCLA
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Emeran Mayer, M.D.

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Annette L. Stanton, Ph.D.
Michael A. Strober, Ph.D., *in Residence (Franklin Mint Professor of Eating Disorders)*
Margaret L. Stuber, M.D. (*Jane and Marc Nathanson Endowed Professor*)
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Roger P. Woods, M.D., *in Residence*
Gail E. Wyatt, Ph.D., *in Residence*
Cui-Wei Xie, M.D., Ph.D., *in Residence*
Alexander S. Young, M.D., *in Residence*
Lonnie K. Zeltzer, M.D.
Bonnie T. Zima, M.D., M.P.H., *in Residence*

Associate Professors

Carrie E. Bearden, Ph.D., *in Residence*
Julienne E. Bower, Ph.D.
Joel T. Braslow, M.D., Ph.D., *in Residence (Frances M. O'Malley Administrative Professor of Neuroscience History)*
John O. Brooks, Ph.D., *in Residence*
Mirella Dapretto, Ph.D., *in Residence*
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X. William Yang, M.D., Ph.D., *in Residence*
Cindy M. Yee-Bradbury, Ph.D.

Assistant Professors

Eraka P.J. Bath, M.D., *in Residence*
Elizabeth A. Bromley, M.D., Ph.D., *in Residence*
Susanna W. Chang, Ph.D., *in Residence*
Bowen Chung, M.D., *in Residence*
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Fred W. Sabb, Ph.D., *in Residence*
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Professors of Clinical Psychiatry

Brenda A. Bursch, Ph.D.
David T. Feinberg, M.D., M.B.A.
Michael J. Gitlin, M.D.
Charles S. Grob, M.D.
Barry H. Guze, M.D.
James J. McGough, M.D.
James E. Spar, M.D.
Thomas B. Strouse, M.D.

Scope and Objectives

The Department of Psychiatry and Biobehavioral Sciences offers interdisciplinary courses related to the mental health professions of the biobehavioral sciences in addition to its programs for psychiatry interns and residents and for medical students.

Enrollment in department courses is limited to registered UCLA students, students registered in programs officially affiliated with UCLA, and students enrolled concurrently through UCLA Extension. Students who meet these requirements, but who are not affiliated with a departmental training program, must also meet required course requisites determined by specific educational programs.

Clinical Psychology Internship

The department offers a 12-month Clinical Psychology Internship. Students enrolled in clinical psychology doctoral programs at APA-approved universities are eligible to apply. Applications are accepted through November 1. The primary goals of the internship are to provide a year of intensive exposure to a wide variety of clinical and human services experiences and to maximize the personal growth of each professional. Students interested in this certificate program should contact David Crawford, C8-244 Semel Institute, (310) 794-5715, e-mail: dcrawford@mednet.ucla.edu, or see <http://www.semel.ucla.edu/psychology/internship/>.

Information on clinical practicums that are offered in conjunction with other educational institutions and UCLA departments may be obtained from the department office.

Psychiatry and Biobehavioral Sciences

Upper Division Courses

M180. Contemporary Problems in Developmental Disabilities. (4) (Same as Psychology M180.) Seminar, three hours. Corequisite: course M181A. Limited to Developmental Disabilities Program students. Examination of broad spectrum of issues related to mental retardation, intelligence and IQ, genetics, neurobiology, and other developmental disabilities. P/NP or letter grading.

M181. Biological Bases of Psychiatric Disorders. (4) (Same as Molecular, Cell, and Developmental Biology M181, Neuroscience M130, Physiological Science M181, and Psychology M117J.) Lecture, three hours. Requisite: Neuroscience M101A (or Molecular, Cell, and Developmental Biology M175A or Physiological Science M180A or Psychology M117A) or Physiological Science 111A or Psychology 115. Underlying brain systems involved in psychiatric symptoms and neurological disorders, including schizophrenia, depression, bipolar disorder, obsessive-compulsive disorder. Provides basic understanding of

brain dysfunctions that contribute to disorders and rationales for pharmacological treatments. P/NP or letter grading.

M181A. Research in Contemporary Problems in Developmental Disabilities. (4) (Same as Psychology M181A.) Lecture, one hour; laboratory, eight hours. Corequisite: course M180. Limited to Developmental Disabilities Program students. Research experience. In Progress grading (credit to be given only on completion of course M181B).

M181B. Research in Contemporary Problems in Developmental Disabilities. (4) (Same as Psychology M181B.) Lecture, one hour; laboratory, eight hours. Requisite: course M181A. Limited to Developmental Disabilities Program students. Research experience. Letter grading.

197. Individual Studies in Psychiatry. (2 to 4) Tutorial, four hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be taken for letter grade once only. May be repeated for credit. Individual contract required. Additional information and contract forms are available in Office of Education, C8-237/C8-238 Semel Institute. P/NP or letter grading.

199. Directed Research in Psychiatry and Biobehavioral Sciences. (2 to 8) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

207A-207B-207C. Hypnosis Seminars. (2-2-2) Experiential seminars to prepare mental health professionals for adult and child clinical applications, involving didactics, demonstrations, trainee practice, and feedback. Following training in inductions and development of classic hypnotic phenomena (e.g., age regression, hypnoanesthesia, self-hypnosis), focus on psychotherapeutic applications, including direct symptom removal, behavioral methods, and hypnoanalysis. Emphasis on acquiring skills for clinical practice. S/U grading.

208A-208B. Clinical Neuropsychology. (2-2) Lecture, 90 minutes. Designed for graduate and postgraduate students. Introduction and review of neuropsychological concepts, including functional neuroanatomical systems of the brain, analytic and synthetic activities of the brain, effects of generalized and focal brain impairment on behavior, and introduction to use of neuropsychological test instruments. Letter grading.

M209. Introduction to Neural Networks: Modeling and Applications. (4) (Same as Biomathematics CM208C.) Lecture, three hours. Preparation: calculus. Introduction to theory of neural networks and their applications. Survey of current neural-network models of cognitive functions. S/U or letter grading.

M210. Editorial Board Apprenticeship. (2) (Same as Health Services M249Q.) Seminar, two hours. Designed for postdoctoral fellows and advanced Ph.D. students. Participation in peer review process for academic journal, *Health Psychology*, with consideration of interface between behavioral science, health, and medicine. Reading and discussion of submissions and advising of editor on suitability for full review. S/U or letter grading.

M214. Cross-Cultural Studies of Socialization and Children. (4) (Same as Anthropology M236P.) Seminar, three hours. Selected topics in cross-cultural study of socialization and child training. Methods, ethnographic data, and theoretical orientations. Emphasis on current research.

M222. Transcultural Psychiatry. (4) (Same as Anthropology M234P.) Lecture, three hours. Consideration of psychiatric topics in cross-cultural perspective, such as studies of drug use, deviance, suicide, homicide, behavioral disorders, "culture specific" syndromes, non-Western psychiatries, and questions of "sick" societies. May be repeated for credit.

226A-226B. Childhood Psychopathology Research Seminars. (2-2) Seminar, 90 minutes. Current research in causes and behavioral manifestations of childhood psychopathology. Discussion on diagnosis and etiology of childhood disturbances.

M230. Communication of Science. (2) (Same as Biomathematics M262.) Lecture, two hours; discussion, one hour. Presentation of various types of scientific writings and their good practice. Details of writing specific articles: methods, results, discussion. Writing of review article. Grant submissions: aims, background, results, design. Role of appendices. Communication with lay public. S/U or letter grading.

M232. Causal Inference. (4) (Same as Biostatistics M235.) Lecture, three hours; discussion, one hour. Requisite: Biostatistics 200A. Selection bias, confounding, ecological paradox, contributions of Fisher and Neyman. Rubin model for causal inference, propensity scores. Analysis of clinical trials with noncompliance. Addressing confounding in longitudinal studies. Path analysis, structural equation, and graphical models. Decision making when causality is disputed. Letter grading.

M234. Affective Disorders. (2 or 4) (Same as Psychology M290.) Seminar, two hours. General topics related to primary affective disorders (depression, manic depressive illness), including diagnosis, pharmacology, epidemiology, psychology, phenomenology, biology, and treatment. Students enrolled for 4 units are assigned a more intensive reading list and required to make a presentation or prepare a research paper.

236A-236B-236C. Psychology Interns Seminars. (1-1-1) Seminar, 90 minutes. Current topics in clinical psychology. Group-selected topics for discussion pertaining to psychopathology, diagnostic evaluation, and modalities of treatment. S/U grading.

237. Seminar: Behavioral Neuroimmunology. (1) Seminar, one hour per month; discussion, 30 minutes per month. Series of lectures presented the second Wednesday of each month throughout academic year by invited speakers. S/U grading.

M238. Survey Research Techniques in Psychocultural Studies. (4) (Same as Psychology M238.) Seminar, three hours. Designed for graduate students. Techniques for conceptualizing, conducting, and analyzing survey data; instruction in qualitative strategies for enhancing survey research on psychocultural problems.

M240. Assessment and Treatment of African American Families. (3) (Same as Afro-American Studies M240.) Seminar, two hours. Designed for graduate students. Course aids mental health professionals and trainees in evaluation and treatment of African American families in terms of their cultural milieu, historical background, and economic status. Didactic presentations by instructors and invited guests form basis for supervised evaluation and case management with African American children and families. Letter grading.

243A-243B-243C. Mental Retardation and Chronic Medical Illness Interdisciplinary Core Curriculum. (1-1-1) Lecture, 90 minutes. Survey series on major topic areas of mental retardation and chronic medical illness, covering epidemiology, nosology, assessment, healthcare delivery systems, basic genetics, nutrition, direct care, and special deficits. Presented in interdisciplinary framework as generic information independent of discipline. S/U grading.

M246. Psychological Aspects of Mental Retardation. (4) (Same as Psychology M246.) Lecture, 90 minutes. Discussion of psychological aspects of mental retardation, including classification, description, etiology, theory, prevention, treatment, assessment, modern and future developments, and input from other disciplines (ethics, law, religion, welfare systems). S/U or letter grading.

253. Seminar: Child Development. (1) Theories of development, systems of child development, and chronological aspects of child development. Presentation of assigned readings by students plays major role in each session.

256. Basic Clinical Child Psychopathology. (1)

Weekly seminar covering basic clinical aspects of child psychopathology. Readings provided for basis of discussion on topics including interviewing of parents and children, diagnosis, and related syndromes. S/U grading.

259. Legal and Ethical Issues with Vulnerable Populations. (3) Lecture, 90 minutes; laboratory, three and one-half hours. Discussion of current laws dealing with vulnerable populations (e.g., children, developmentally disabled people, elderly people); philosophies, ethics, ethical codes, issues, and how to resolve them. Use of videotapes and discussion of cases.

261. Advanced Seminar: Child and Adolescent Psychopharmacology. (1) Use of problem-based teaching methods and critical reviews of medical literature as basis for rational pharmacotherapy in children and adolescents. Major focus on development of a clinical decision-making process, given the limited scientific evidence supporting pharmacological practice in the field. S/U grading.

M263. Clinical Pharmacology. (2) (Same as Biomathematics M263 and Medicine M263.) Lecture, two hours. Preparation: completion of professional health sciences degree (M.D., D.D.S., D.N.Sc., or Ph.D.). Overview of principles of clinical pharmacology, especially as they relate to clinical and translational medicine and to advances in contemporary medicine such as targeting, gene therapy, and genomics. Letter grading.

264. Health and Mental Health Disparities from Psychosocial and Cultural Perspectives. (3) Seminar, three hours. Designed for graduate and medical students, resident physicians, and juniors/seniors (with consent of instructor) interested in learning about general, sexual, and mental health disparities. Survey course to introduce students to health disparities that exist for ethnic minorities and factors that may contribute to disproportionate prevalence rates. Review and discussion of research literature, with focus on specific diseases such as HIV/AIDS, substance abuse, depression, and breast and prostate cancer. Discussion of stereotypes and myths about healthcare of ethnic populations. Examination of psychosocial and cultural contexts as potential or contributing factors. S/U or letter grading.

M266. Advanced Magnetic Resonance Imaging. (4) (Same as Biomedical Physics M266 and Neuroscience M267.) Lecture, four hours. Starting with basic principles, presentation of physical basis of magnetic resonance imaging (MRI), with emphasis on developing advanced applications in biomedical imaging, including both structural and functional studies. Instruction more intuitive than mathematical. Letter grading.

M270. Neural Basis of Memory. (4) (Same as Neuroscience M273.) Lecture, two hours; discussion, one hour. Anatomical, physiological, and neurological data integrated into models for how behavioral phenomena of memory arise. Discussion of invertebrate memory, cortical conditioning, hippocampus and declarative memory, and frontal lobes and primary memory.

M272. Psychological Anthropology. (4) (Same as Anthropology M234Q.) Lecture, three hours. Various psychological issues in anthropology, both theoretical and methodological. Areas of interest include such things as culture and theory, culture and personality, and culture psychiatry. Discussion of questions relating to symbolic and unconsciousness process as they relate to culture. Topics vary from term to term. May be repeated for credit.

M273. Advanced Seminar: Medical Anthropology. (2 to 4) (Same as Anthropology M263Q, Community Health Sciences M244, and Nursing M273.) Seminar, three hours. Limited to 15 students. Examination of interrelationships between society, culture, ecology, health, and illness. Bases for written critical analysis and class discussion provided through key theoretical works. S/U or letter grading.

274A-274B-274C. Research Seminar: Psychoneuroimmunology. (2-2-2) Seminar, two hours. Research foundations for basic and clinical psychoneuroimmunology and clinical implications of relationship between brain, behavior, and immunity. S/U grading.

M277. Cognitive Behavior Therapy with Children: Treatment and Systems of Care. (2 or 4) (Same as Psychology M285.) Seminar, 90 minutes. Designed for graduate students. Cognitive/behavioral approaches to prevention and treatment of mental health problems in children. Examination of service delivery systems for treating troubled youth and discussion of issues with respect to current systems of care. Major problems include conduct disorders, attention deficit disorder, depression, anxiety, and learning disabilities. Letter grading.

M280. Politics of Reproduction. (2 to 4) (Same as Anthropology M269P) Seminar, three hours. Examination of various ways that power, as it is structured and enacted in everyday activities, shapes human reproductive behavior. Case materials from diverse cultures illuminate how competing interests within households, communities, states, and institutions influence reproductive arrangements in society. Letter grading.

281A-281B-281C. Behavioral Therapy in Educational Settings. (4-4-4) Lecture, one hour; laboratory, seven hours. Supervised experience in classroom working with exceptional children in conducting systematic observations, administering formal assessments, and developing and carrying out individualized educational and behavioral programs. Theoretical background furnished through one-hour weekly lecture. S/U or letter grading.

M282. Anthropology of Human Body. (2 to 4) (Same as Anthropology M234T.) Seminar, three hours. Exploration of how sociocultural and political dynamics shape perceptions of and understandings about human body, and how, reciprocally, those perceptions and understandings influence social processes. Includes materials from both non-Western and Western societies. Letter grading.

M283. Anthropology of Genetic Knowledge. (2 to 4) (Same as Anthropology M265.) Seminar, three hours. Exploration of how sociocultural and political dynamics shape our understandings of genetic discoveries and how genetic information is used to create conceptions of self and society. Letter grading.

284A. Principles of Neuroimaging I. (4) Lecture, four and one-half hours. Preparation: competence in integral calculus, electricity and magnetism, computer programming (any language), general statistics. Requirement: course 292. Instrumental imaging methods for study of nervous system, with emphasis on quantitative understanding and data interpretation and features common to modalities. X-ray computed tomography, magnetic resonance imaging, positron emission tomography, magnetoencephalography, transcranial magneto stimulation, near infrared imaging. Letter grading.

284B. Principles of Neuroimaging II. (4) Lecture, four and one-half hours. Preparation: competence in integral calculus, electricity and magnetism, computer programming (any language), general statistics. Requirement: course 284A. Instrumental imaging methods for study of nervous system, with emphasis on quantitative understanding and data interpretation and features common to modalities. X-ray computed tomography, magnetic resonance imaging, positron emission tomography, magnetoencephalography, transcranial magneto stimulation, near infrared imaging. Letter grading.

M285. Functional Neuroimaging: Techniques and Applications. (3) (Same as Biomedical Engineering M284, Biomedical Physics M285, Neuroscience M285, and Psychology M278.) Lecture, three hours. In-depth examination of activation imaging, including MRI and electrophysiological methods, data acquisition and analysis, experimental design, and results obtained thus far in human systems. Strong focus on understanding technologies, how to design activation imaging paradigms, and how to interpret results. Laboratory visits and design and implementation of functional MRI experiment. S/U or letter grading.

M286A-M286B-M286C. Statistics in Psychiatric and Biobehavioral Research. (2-2-2) (Same as Biostatistics M206A-M206B-M206C.) Seminar, 90 minutes. Requirement: Biostatistics 100B. Designed for graduate students. Examples from psychiatric literature used to illustrate statistical ideas and analysis strategies. Topics include experimental designs, sample size calculations, parametric versus nonparametric tests, regression, ANOVA, factor analysis, defining composite variables, causal inference. Computer used to illustrate basic data analysis. S/U or letter grading.

287. Small Group Cognitive/Behavioral Interventions. (4) Lecture, three hours. Presentation of brief therapeutic interventions for adults and children at risk for suicide, depression, conduct problems, and HIV, with didactic and experiential techniques.

M288. Social and Behavioral Factors of HIV/AIDS: Global Perspective. (4) (Same as Community Health Sciences M294.) Lecture, four hours. Requirements: Community Health Sciences 100 and Epidemiology 100, or prior social sciences courses. Overview of social and behavioral factors which influence both transmission and prevention of HIV/AIDS throughout the world. Letter grading.

M289. Intervention to Reduce HIV and Its Consequences. (4) (Same as Community Health Sciences M299.) Lecture, three hours. Examination of interventions to reduce HIV/AIDS transmission. Review of theory and research supporting efficacy of HIV interventions for variety of high-risk populations. Letter grading.

290. Los Angeles HIV-Community Colloquia. (1) Lecture, two hours. Examination of emerging scientific HIV-related research. Discussion of policy issues, theories, and designs of HIV-related services and programs and shifting epidemiology of the virus and disease. S/U grading.

291. Functional Magnetic Resonance Imaging and Consciousness Journal Club. (1) Seminar, three hours; discussion, three hours. Opportunity for students to gain better appreciation of experimental neuroimaging methods and challenges in experimentation of higher and abstract cognitive processes. Readings of journal articles (selected by students and instructor) addressing topics of functional magnetic resonance imaging and experimental studies of consciousness. Preparation of summaries, discussion of selected manuscripts, and performance of adequate background research to clarify material. S/U grading.

292. Functional Neuroanatomy for Neuropsychologists. (2) Lecture, two hours. Preparation: graduate-level neuroanatomy course. Designed for neuropsychology and radiology postdoctoral fellows and neuroscience graduate students. Human functional anatomy from systems perspective, integrating results from lesion research and functional neuroimaging. Students learn to identify gyri and major sulci on MR images and memorize associated Brodmann's region. Letter grading.

294. Essentials of Clinical Investigation. (2) Lecture, two hours; discussion, two hours. Designed for graduate students. Introduction to initial steps in clinical research through preparation of research proposal. Small working groups develop grant proposal on specific topic. S/U grading.

295A-295B-295C. Substantive Issues in Substance Abuse I, II, III. (2-2-2) Seminar, two hours; discussion, one hour. S/U grading:

295A. (2) Seminar, two hours; discussion, one hour. Neurobiology and psychopharmacology of drug abuse, as well as epidemiology and prevention. Discussion of pros and cons of various treatment modalities for drug dependence. S/U grading.

295B. (2) Seminar, two hours; discussion, one hour. Drug use patterns and treatment issues in specific populations such as women, adolescents, homeless, multiply diagnosed, as well as different ethnic populations. Exploration of relationship between drug abuse, sexuality, and HIV/AIDS. S/U grading.

295C. (2) Seminar, two hours; discussion, one hour. Theoretical perspectives on drug use and abuse as well as policy and ethical aspects of drug abuse research. Research design and analysis issues pertinent to drug abuse research. S/U grading.

402. Journal Club. (1) Seminar, two hours; outside study, two hours. Presentation of participants' current research. Critical review of recent articles on drug abuse. Training sessions included in areas in which fellows believe they have a recognized need. S/U grading.

403. Individual Case Supervision. (1 to 4) Preparation: submission of written proposal to be structured by instructor and student prior to enrollment; additional information and proposal forms available in Office of Education, C8-237/C8-238 Semel Institute. One-to-one supervision of individual therapy cases, including analyses of patient data, supervision of ongoing treatment, informal didactic sessions on personality theory, and applications to patient management. S/U or letter grading.

405. Trauma and Sexual Abuse Research Seminar. (3) Seminar, three hours. Designed for graduate and medical students and resident physicians interested in learning about biobehavioral trauma research. Introduction to DSM-IV TR diagnostic criteria for posttraumatic stress disorder (PTSD), as well as biopsychosocial sequelae. Examination and discussion of child and adult sexual abuse in context of being causative precursors of acute and chronic causes of PTSD. Evaluation of allostatic load, among other biologic variables, within context of physiological markers for PTSD. Review of current modes of treatment, including therapeutic and pharmacological interventions. Discussion of research methods particularly important for trauma research. S/U or letter grading.

M424. Functional Magnetic Resonance Imaging Journal Club. (2) (Same as Biomedical Physics M424.) Discussion, 90 minutes. Limited to 10 students. Current topics in functional neuroimaging, with emphasis on novel applications, analysis, and acquisition methods. Presentation and critique of student papers. Overall emphasis on magnetic resonance imaging. Example areas include tractography through diffusion tensor imaging, jittered event-related experimental designs, parallel receiver MR imaging, integrated electrophysiological and image acquisition. S/U grading.

425. Teaching Case Conference. (1) Review of diagnosis and treatment of full spectrum of disorders, with expert off-unit consultants. S/U or letter grading.

429. Child Outpatient Team. (1) Weekly team meetings to coordinate clinical activities of trainees in Child Outpatient Department. Discussion of literature and theories related to selected cases. S/U grading.

434. Seminar: Addiction Psychiatry. (1) Seminar, one hour. Cutting-edge information on basic and applied aspects of addiction psychiatry (neurobiology, pharmacology, genetics, and evidence-based medical and behavioral therapies) and opportunities for participants to collaborate with established scientists in addiction research. S/U grading.

449. Parent Training Intervention Workshop. (2) Lecture, 90 minutes; discussion, one hour. Advanced clinical trainees learn behavioral techniques of assessment and treatment of parent/child problems. Lectures, case presentations, and workshops on various skills necessary.

454. Advanced Topics in Neuropsychology. (1) Seminar, one hour. Coverage of topics in even years that involve interface of neuropsychology with other disciplines, such as cognition and psychopharmacology, cognitive remediation, ecological validity of neuropsychological assessment, cognition and genomics, and psychometrics/test development. Focus in odd years on current models of human neuropsychology, such as models of working memory, neuropsychology of emotion and social cognition, models of implicit versus explicit learning, types of attention, and models of executive processes. S/U grading.

468. Translational Neuroscience of Drug Addiction. (1) Lecture, one hour. Designed for graduate students. Students need cross-disciplinary knowledge to understand drug abuse etiology, behavior, conse-

quences, and treatment. Coverage of major topics in drug addiction by emphasizing use of animal models to understand human addiction and to disclose how findings derived from human studies can be used to expand development of animal models. S/U grading.

479. Genetics Clinic Presentation. (No credit) Weekly clinical teaching session on patients seen in preceding genetics clinic. In-depth discussion on genetics of each disorder.

480. Analysis of Human Chromosome Studies. (1) Chromosome karyotypes prepared in cytogenetics laboratory during preceding week presented and discussed with reference to clinical findings. Teaching includes interpretation of abnormal karyotypes and technical aspects of routine and special chromosome stains.

482. Clinical Practicum in Childhood Anxiety and Related Disorders. (3) Clinic, two hours. Training in cognitive/behavioral assessment and treatment of children and adolescents with anxiety and related disorders. Didactic and experiential training, including direct patient care, clinical supervision, and participation in weekly team meetings. Letter grading.

485. Human Genetics Seminar. (No credit) Seminar, one hour. Preparation: introductory genetics course. Weekly lecture series intended for those interested in human genetics or in specific topic to be presented. Speakers are invited for their expertise or research in some special area related to human genetics and may be from UCLA or elsewhere. No grading.

M490. Educational Advocacy. (2) (Same as Law M431.) Clinic, two hours (12 weeks). How to provide educational advocacy based on IDEA, ADA, and Section 504 of Rehabilitation Act on behalf of children with learning disabilities, behavior disorders, and mental retardation. S/U or letter grading.

596P. Individual Studies in Psychiatry. (2 to 12) Tutorial, to be arranged. Preparation: submission of written proposal outlining course of study (to be structured by instructor and student at time of initial enrollment). Additional information and course proposal forms available in Office of Education, C8-237/C8-238 Semel Institute. Directed individual research and study in psychiatry at graduate level. S/U or letter grading.

PSYCHOLOGY

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Michelle G. Craske, Ph.D, *Vice Chair,*
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Adjunct Associate Professor

Iris Firstenberg, Ph.D.

Adjunct Assistant Professor

Gian C. Gonzaga, Ph.D.

Scope and Objectives

Psychology is a subject of considerable interest to most people—we all tend to practice some form of intuitive psychology in an attempt to understand ourselves and the people and groups with whom we interact. The curriculum offered by the UCLA Department of Psychology presents psychology as a scientific discipline that employs systematic methods of inquiry to study and explain human and animal behavior—both normal and abnormal—in terms of a variety of underlying variables, including neural, physiological, and cognitive processes; developmental factors and individual differences; and social and interpersonal influences and contexts. According to recent surveys, the UCLA Psychology Department is ranked as one of the top departments in the country.

The undergraduate curriculum has been designed to reflect the extensive breadth of psychology—both the range of behavioral phenomena studied and the variety of methods and theoretical approaches employed—while allowing students to pursue in greater depth those areas in which they become most interested. Beyond basic core courses, students can take many specialized courses in areas such as behavioral neuroscience, animal behavior, learning and memory, motivation, perception, cognition, measurement, personality, and clinical, social, developmental, community, and health psychology. The curriculum also provides excellent opportunities for research

experience—either in the form of laboratory courses or by participation with faculty members and graduate students in a wide variety of research projects.

A choice of three undergraduate majors is offered: a B.A. degree in Psychology and B.S. degrees in Cognitive Science and in Psychobiology. While the majors overlap in certain fundamental and basic knowledge bases, they differ considerably in their focus (i.e., the extent to which certain areas of psychology and related disciplines are studied) and in terms of the different student interests and needs they satisfy. For nonmajors, the department offers many courses that provide new and valuable insights into the understanding of human behavior, including their own.

At the graduate level, the department offers training leading to the Ph.D. degree with emphases in the areas of behavioral neuroscience, clinical, cognitive, cognitive neuroscience, developmental, health, learning and behavior, social, and quantitative psychology. The graduate program is designed to prepare future psychologists for careers as scientific investigators, college and university teachers, and professional psychologists.

Undergraduate Study

Psychology B.A.

The Psychology major is the most general of the three majors and offers both broad and in-depth coverage of the fundamental and traditional areas of psychology. It provides students with a strong foundation for postgraduate education in psychology and can serve as excellent background to prepare them for further training in such fields as law, education, government and public policy, business, and many of the health-related professions. Its basic liberal-arts orientation also provides excellent foundation for immediate postbaccalaureate careers in many areas, particularly ones in which an understanding of human behavior and its diversity of expression would be an asset.

The requirements described below represent the minimum requirements in satisfaction of the preparation and the major. Additional courses in psychology, statistics, and related sciences, as well as other types of research and fieldwork experiences, are highly recommended if students plan to pursue graduate work in psychology and related fields. Under special circumstances, graduate-level courses can be taken by undergraduate students, although such courses may not be applied toward degree requirements for the major. For additional information, contact the Undergraduate Advising Office, 1531 Franz Hall.

Psychology Premajor

Students need to file a petition in the Undergraduate Advising Office to declare the Psychology premajor. Psychology premajors can petition to declare the Psychology major once they have (1) satisfied all the preparation for the major requirements and (2) are accepted

into the major through a competitive application process (for students who entered UCLA as freshmen) or file a petition to declare the Psychology major (for students who entered UCLA as transfers).

Preparation for the Major

Each of the following required courses must be taken for a letter grade (C or better in Psychology 10, 100A, and 100B, C— or better in the remaining courses): Life Sciences 1 or 15 or Physiological Science 3; Chemistry and Biochemistry 2 or 14A or 20A or Physics 10 or 1A or 6A; one course from Computer Science 2, Mathematics 2, Program in Computing 10A, Statistics 10, or one term of calculus; one course from Philosophy 1, 2, 3, 4, 5, 6, 7, 8, 9, 21, 22, 22W, 31; Psychology 10, 100A, 100B. Students cannot take Psychology 100B until they have passed course 100A with a grade of C or better. Psychology 100A and 100B are only open to students who have declared the Psychology premajor before the term in which they plan to enroll. It is recommended that students with no background in introductory statistics take Statistics 10 before enrolling in course 100A.

Students who repeat more than two preparation courses or any preparation course more than once are denied admission to the major.

Freshman Students

Students may declare the Psychology premajor once they have established a 2.5 grade-point average in at least one preparation for the major course.

Students must petition to declare the Psychology major and can do so once they complete all seven preparation for the major courses and submit an application to enter the major by the end of the Spring Quarter of their second year at UCLA. Admission into the major is based on student academic performance in the preparation courses. Students who have a grade-point average of 2.9 or higher in the preparation coursework and have met all other Psychology premajor requirements are guaranteed entry into the major after they submit the application by the above deadline. Students with a grade-point average between 2.5 and 2.89 in the preparation coursework enter a competitive application pool and are admitted only if there is space available in the major. Students with a grade-point average below 2.5 in the preparation coursework are not eligible to apply for admission to the major.

Transfer Students

Transfer applicants to the Psychology major with 90 or more units must complete the following introductory courses prior to admission to UCLA: one biology course equivalent to Life Sciences 1 or 15 or Physiological Science 3, one general chemistry or general physics course, one philosophy course, one introduction to psychology course, and one course from statistics (recommended), finite mathematics, calculus, computer science theory, or computer programming in C++.

Refer to the *UCLA Transfer Admission Guide* at <http://www.admissions.ucla.edu/prospect/adm>

_tr.htm for up-to-date information regarding transfer selection for admission.

After satisfying the preparation for the major requirements, students need to petition to enter the major at the Undergraduate Advising Office.

The Major

Required: (1) Five core courses, with at least two from each category and a fifth course from either category: (a) Psychology 110, 115 (or M117A, M117B, and M117C), 120A, 120B, and (b) 127A or 127B or 127C, 130 (or one course from 133A through 133I), 135, 150; (2) one laboratory/fieldwork course from 101, 111, 116, 121, 126, 131, 136A, 136B, 136C, 151, 186A through 186D; (3) four additional upper division elective courses (16 units) in psychology.

Students who complete Psychology M117A, M117B, M117C receive equivalent credit for course 115 and two upper division psychology electives. All three courses must be completed to receive psychology elective credit.

Each upper division course must be taken for a letter grade. A C– or better is required in each core course and in at least one laboratory/fieldwork course. Students must have a 2.0 grade-point average in all upper division courses selected to satisfy major requirements.

Cognitive Science B.S.

The Cognitive Science major focuses on the study of intelligent systems, both real and artificial. While including a strong foundation in the traditional areas of psychology, the major is interdisciplinary in nature and emphasizes subject matter within cognitive psychology, computer science, mathematics, and related disciplines.

The requirements described below include sufficient preparation if students plan to pursue graduate work in cognitive science or related fields; however, they may want to include additional advanced courses in psychology and fields related to cognitive science (e.g., computer science, linguistics, mathematics, philosophy, and statistics) as well as other types of research and fieldwork experiences. Under special circumstances, graduate-level courses can be taken by undergraduate students, although such courses may not be applied toward degree requirements for the major. For additional information, contact the Undergraduate Advising Office, 1531 Franz Hall.

Cognitive Science Premajor

Students need to file a petition in the Undergraduate Advising Office to declare the Cognitive Science premajor. They are then identified as Cognitive Science premajors until they (1) satisfy the preparation for the major requirements and (2) file a petition to declare the Cognitive Science major. Questions about the major should be directed to the Undergraduate Advising Office, 1531 Franz Hall.

Preparation for the Major

Each of the following required courses must be taken for a letter grade (C or better in each

course and a 2.5 overall grade-point average in the preparation courses) before students reach 140 total units: Life Sciences 1 or 15 or Physiological Science 3; Chemistry and Biochemistry 2 or 14A or 20A or Physics 10 or 1A or 6A; Mathematics 31A, 31B; Philosophy 7 or 8 or 9; Program in Computing 10A, 10B, and one course from 15 or 20A or 40A; Psychology 10, 85, 100A, 100B. Students cannot take Psychology 100B until they have passed course 100A with a grade of C or better. Psychology 100A and 100B should be taken early in the career; these courses are open only to students who have declared the Cognitive Science premajor before the term in which they plan to enroll. Students with no background in introductory statistics should take Statistics 10 before enrolling in course 100A.

Students who repeat more than two preparation courses or any preparation course more than once are denied admission to the major.

Transfer Students

Transfer applicants to the Cognitive Science major with 90 or more units must complete the following introductory courses prior to admission to UCLA: one biology course, one general chemistry or general physics course, two calculus/analytical geometry courses, one general physics course, one philosophy course, one introduction to psychology course, one introduction to cognitive science course, one psychological statistics course, one psychology research methods course, one computer programming course in C++, and one other computer programming course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

After satisfying the preparation for the major requirements, students need to petition to enter the major at the Undergraduate Advising Office.

Required: (1) Psychology 115 (or M117A, M117B, and M117C), 120A or 120B, and one course from 124A through 124J; (2) one course from 186A through 186D and one course from 121, 186A through 186D, or Computer Science 161; (3) three upper division elective courses (12 units) from Psychology 110, 112A through 116, M117J through M119X, 124A through 124J (if taken for the major, may not be applied as an elective), 130, 133B, 135, 142H, 160, 187A, 191CH (if content is approved by the Undergraduate Advising Office and course has not been applied toward the Psychology 195B or 196B requirement), Computer Science 111 through CM186B, Ethnomusicology 172A, Linguistics 103 through 185B, Mathematics 110A through 171, Neuroscience 102, Philosophy 124 through 136, Statistics 100A, 100B, 100C, 101B, 101C; (4) two terms of Psychology 195B or 196B (may be fulfilled by taking any two courses from 191CH, 195B, or 196B, provided content is approved by the Undergraduate Advising Office).

Students who complete Psychology M117A, M117B, M117C receive equivalent credit for course 115 and two upper division cognitive science electives. All three courses must be completed to receive cognitive science elective credit.

Students must have a 2.0 grade-point average in all upper division courses selected to satisfy major requirements. With the exception of Psychology 195B and 196B, each course must be taken for a letter grade.

Psychobiology B.S.

The Psychobiology major is designed for students who plan to go on to postgraduate work in physiological psychology, neuroscience, behavioral aspects of biology, or the health sciences. Psychobiology involves the study of brain-behavior relations and laboratory training in standard brain research techniques.

The requirements described below include sufficient preparation if students plan to pursue graduate work in any of the above fields; however, they may want to include additional advanced courses in psychology and related sciences as well as other types of research and fieldwork experiences. Under special circumstances, graduate-level courses can be taken by undergraduate students, although such courses may not be applied toward degree requirements for the major. For additional information, contact the Undergraduate Advising Office, 1531 Franz Hall.

Psychobiology Premajor

Students need to file a petition in the Undergraduate Advising Office to declare the Psychobiology premajor. They are then identified as Psychobiology premajors until they (1) satisfy the preparation for the major requirements and (2) file a petition to declare the Psychobiology major.

Preparation for the Major

Life Sciences Core Curriculum

Required: Life Sciences 1, 2, 3, 4; Chemistry and Biochemistry 14A, 14B, 14BL, 14C, 14CL, and 14D, or 20A, 20B, 20L, 30A, 30AL, 30B, and 30BL; Mathematics 3A, 3B, and 3C, or 31A, 31B, and 32A; Physics 1A, 1B, 1C, 4AL, and 4BL, or 6A, 6B, and 6C.

Also required are Psychology 10, 100A, 100B. Students cannot take Psychology 100B until they have passed course 100A with a grade of C– or better. Psychology 100A and 100B should be taken early in the career; these courses are open only to students who have declared the Psychobiology premajor before the term in which they plan to enroll. Students with no background in introductory statistics should take Statistics 10 before enrolling in course 100A.

Each core curriculum course must be taken for a letter grade (C– or better in each course and a 2.0 overall grade-point average in the core curriculum) before students reach 150 total units. Students who repeat more than two prep-

aration courses or any preparation course more than once are denied admission to the major.

Transfer Students

Transfer applicants to the Psychobiology major with 90 or more units must complete the following introductory courses prior to admission to UCLA: one year of general biology with laboratory for majors, preferably equivalent to Life Sciences 1 and 2, one year of calculus, one year of general chemistry with laboratory for majors, one semester of organic chemistry with laboratory, one introduction to psychology course, one psychological statistics course, and one psychology research methods course. A second semester of organic chemistry or one year of calculus-based physics is strongly recommended but not required for admission.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

After satisfying the preparation for the major requirements, students need to petition to enter the major at the Undergraduate Advising Office.

Required: (1) Ecology and Evolutionary Biology 100 or 129 or Psychology 118 or Anthropology 128A and 128B, and Psychology 110, 115 (or M117A, M117B, and M117C), 116 or Neuroscience 101L, 120A or 120B; (2) one course from Psychology 127A, 127B, 127C, 130, 133A through 133I, 135, 150; (3) 16 units of graded elective courses from the following list: Ecology and Evolutionary Biology 112, 113A, 114A (no more than one from this group), Psychology 111, 112A through 112D, M117A, M117B, M117C, M117J, 119A through M119X, 160, 186D, 191CH (only if content is approved by the Undergraduate Advising Office), Chemistry and Biochemistry 153A, 153L, Computational and Systems Biology M186C, Ecology and Evolutionary Biology 100, 102, 105, 106, 110, 111, 115, 117, C119, 120, 121, 122, 124 (only 4 units may be applied toward the major), 129, 135, 146, M158, 164, 170, Microbiology, Immunology, and Molecular Genetics 185A, Molecular, Cell, and Developmental Biology 100, 104, 138, M140, CM156, Neuroscience 102, Physiological Science C144, 146, 147, M148, 166, 173.

Students who complete Psychology M117A, M117B, M117C receive equivalent credit for course 115 and 10 units of upper division psychobiology electives. All three courses must be completed to receive psychobiology elective credit.

Students must have a 2.0 grade-point average in all upper division courses selected to satisfy major requirements, and each must be taken for a letter grade.

Honors

Honors Courses

Each year the department offers a selection of honors courses, designated with an H suffix. The courses provide close contact with faculty

members, emphasize readings in the original literature, student reports, and small group discussions, and may include field or research experience. Enrollment priority in honors courses is given to students in the departmental honors program. Consult the College of Letters and Science for information on requirements for College Honors.

Honors Program

Psychology, Cognitive Science, and Psychobiology majors intending to continue study at the graduate level are encouraged to apply for the departmental honors program. Students work for one year with a faculty sponsor on a research project that is the basis of a formal honors thesis. During that year they also participate in a weekly seminar (Psychology 191AH, 191BH, 191CH) in which thesis projects are presented and discussed and other topics of interest are explored with invited faculty members and other guests. Other requirements may apply. Consult the Undergraduate Advising Office during Spring Quarter for further information and application forms. Satisfactory completion of the program and the other requirements for the major leads to awarding of the degree with honors or highest honors.

Computing Specialization

Majors in Psychology, Psychobiology, and Cognitive Science may select a specialization in Computing by (1) satisfying all the requirements for a bachelor's degree in the specified major, (2) completing Program in Computing 10A, 10B, and at least one course from 10C, 15, 20A, 30, 40A, or 60, and (3) completing at least three courses from Psychology 85, 121, 142H, 186A through 186D (one 199 course may be substituted for one of these courses provided project has been approved by vice chair). A grade of C or better is required in each course. Students graduate with a bachelor's degree in their major and a specialization in Computing. Students planning to enter this specialization should consult the Undergraduate Advising Office.

Applied Developmental Psychology Minor

The Applied Developmental Psychology minor is designed to (1) provide a coherent academic program with focus on issues central to improving the well-being of children and their families, (2) teach undergraduate students how to apply theories, research methods, and research findings to practical concerns, and (3) prepare students to join or receive further training in various child-related professions.

The minor is open to all enrolled UCLA students (including Cognitive Science, Psychobiology, and Psychology majors) who have an overall grade-point average of 2.0 or better and have been accepted into an approved applied developmental psychology internship program. For further information about applying to the internship program, contact the director of the Infant Development Program, 1615 Franz Hall,

(310) 825-2896. For questions about additional course requirements for the minor, contact a counselor in the Undergraduate Advising Office, 1531 Franz Hall, (310) 825-2730.

Required Lower Division Course (4 units): Psychology 10.

Required Upper Division Courses (24 units): Psychology 134A (must be taken concurrently with course 134D), 134B (must be taken concurrently with course 134E), and four additional courses from Education 120, 121, 132, Psychology 127C, 129F, 130, 131, 132A, 132B, 133B through 133I, 134F, 134G, 134I, 199A or 199B (content must be approved by the Undergraduate Advising Office), Sociology M174. One of the four additional courses must include either Psychology 130 or one course from 133B through 133I.

Internship Requirement/Fieldwork Component (8 units): Psychology 134C, 134D (must be taken concurrently with course 134A), 134E (must be taken concurrently with course 134B). Students work as interns for three consecutive academic terms at an approved daycare center/school. The internship provides hands-on experience working with young children as teacher's aides and opportunities for observing children.

No more than two courses may be applied toward both this minor and a major in another department or program. Each minor course, except for the fieldwork component of the internship courses, must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Cognitive Science Minor

The Cognitive Science minor is designed to introduce students to cognitive science topics as addressed in a number of different disciplines, such as biology, computer science, engineering, linguistics, mathematics, philosophy, and psychology, while allowing them to pursue a more in-depth study of cognitive science topics within specific areas of their own choice.

The minor consists of two parts. In the first part students complete background courses and satisfy a computer programming experience requirement. In the second part they select a primary cluster from four clusters of upper division courses that have been organized to reflect different aspects of cognitive science. Students take three courses within their primary cluster and two additional courses from the remaining clusters (secondary clusters).

The minor is open to all enrolled UCLA students, other than Cognitive Science majors, who have an overall grade-point average of 2.0 or better. Students must make an appointment with a counselor in the Undergraduate Advising Office, 1531 Franz Hall, (310) 825-2730, to enter the minor and receive counseling on how to select a primary cluster.

Required Courses (28 units): Psychology 85 and one course from 15, 100B, Computer Science 2, Linguistics 1, 20.

The computer programming experience requirement is satisfied by petition based on coursework (e.g., completion of Program in Computing 10A) or other relevant programming experience.

Students must also select (with approval of the Undergraduate Advising Office) and complete one of the following four primary clusters: (1) *biological basis of cognition cluster*—three courses from Linguistics C135, Neuroscience 102, Psychology 115, 116, M117C (or Molecular, Cell, and Developmental Biology M175C or Neuroscience M101C or Physiological Science M180C), 119B, 119F, M119L, M119N, 160; (2) *computation and modeling cluster*—three courses from Biomathematics 108, Computer Science 161, Psychology 186A through 186D (at least one course must be from Computer Science 161, Psychology 186A through 186D); (3) *human cognition cluster*—Psychology 121 and two courses from 120A or 120B, 124A through 124J, 133B, 133C, 133E; (4) *mind and language cluster*—three courses from Linguistics 120A, 120B, 125, 130, 132, C135, 185A, Philosophy 124, 125, 126, 127A, 127B, 129, 170, 172, Psychology 124A.

Students must also fulfill a secondary cluster requirement of two additional courses from one or more of the clusters not selected as the primary cluster.

No more than two courses may be applied toward both this minor and a major in another department or program. Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Fieldwork and Research Opportunities

Many research and fieldwork opportunities are open to students who wish to expand their knowledge and broaden their background in the field of psychology. These experiences can be enriching and help bring undergraduate students closer to understanding the importance of research and internships, including their applications in the everyday world. At least one of the following courses is recommended for students planning postgraduate study: Psychology 99, 185, 192, 193, 194A through C194D, 195A, 195B, 196A, 196B, 199A, or 199B. Only 12 units from any combination of courses 185, 192, 194, 195, and 196 may be applied toward the undergraduate degree. Information about these courses and programs is available from the Undergraduate Advising Office, 1531 Franz Hall.

Only one 4-unit 199 course may be taken per term, and only 16 units of course 199 may be applied toward the degree. Only one 199 course may be taken for a letter grade (additional 199 courses may be taken on a P/NP basis). If approved in advance by the Undergraduate Advising Office, 8 units of course 199 may

be applied toward the Psychology 195B/196B requirement for the Cognitive Science major and 4 units of course 199B may be applied toward the elective course requirements for the Psychology major.

Psychology Research Opportunity Programs

The Psychology Research Opportunity Programs (PROPS) represent a vital effort to identify and mentor underrepresented minority and/or low-income students. The purpose of PROPS is to encourage such students to participate in research and pursue graduate studies leading to careers in academia. The recruitment and application process for PROPS takes place each Fall Quarter. Students selected to participate are awarded stipends for Winter and Spring Quarters, during which time they do research under the mentorship of a psychology faculty member. In addition, students are required to attend weekly seminars covering such topics as graduate school, careers in academia, and research opportunities in various fields of psychology. Prior research experience is not required. This is an excellent opportunity for students to begin their research careers and acquire the needed experience to pursue advanced studies.

Infant Development Program

The Megan E. Daly Infant Development Program (IDP), established in May 1983, is designed as a teaching and research facility for the department and is set up to accommodate both cross-sectional and longitudinal investigation of infants, toddlers, their families, and caregivers. In addition, the program provides an opportunity for undergraduate students in developmental psychology and other areas to acquire firsthand experience working with infants and toddlers on an individual basis or in a group setting. The program has two primary functions: (1) to offer quality group care for infants and toddlers of the students, staff, and faculty of the Psychology Department and other UCLA departments and (2) to serve as a teaching and research facility for the Psychology Department and the UCLA community. The program has two locations and accommodates children from three months to three years old.

UCLA Psychology Clinic

The UCLA Psychology Clinic in the Department of Psychology is a major training center for students in the clinical psychology Ph.D. program, one of the top-ranked programs in the country. It provides a broad range of psychological services to children and adults, including assessment and individual, couples, family, and group therapy. Clients cover the entire age range and represent diverse populations in the community.

Student therapists receive very close supervision and utilize research-based cutting-edge psychological interventions. Students and fac-

ulty members are also involved in a variety of research projects through the clinic.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmreqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Psychology offers Master of Arts (M.A.), Candidate in Philosophy (C.Phil.), and Doctor of Philosophy (Ph.D.) degrees in Psychology.

Psychology

Lower Division Courses

10. Introductory Psychology. (4) Lecture, four hours. General introduction including topics in cognitive, experimental, personality, developmental, social, and clinical psychology; six hours of psychological research and a grade of C or better required of all departmental premajors. P/NP or letter grading.

15. Introductory Psychobiology. (4) Lecture, three hours. Designed for nonmajors. Survey of genetic, evolutionary, physiological, pharmacological, and experimental factors affecting behavior. Using comparative approach where appropriate, emphasis on relevance of biological mechanisms to understanding of humans and their interaction with their environment. P/NP or letter grading.

85. Introduction to Cognitive Science. (4) Lecture, three hours. Exploration of computer metaphor of mind as an information-processing system, focusing especially on perception, knowledge representation, and thought based on research in cognitive psychology, neuropsychology, and artificial intelligence. Many examples from visual information processing.

88A-88Z. Lower Division Seminars. (4 each) Seminar, three hours. Enforced prerequisite: course 10. Limited to freshmen/sophomores. Intensive analysis in seminar situations of selected topics of current psychological interest. Consult *Schedule of Classes* for topics and instructors. May be repeated for credit:

88A. Stress, Adaptation, and Coping. Limited to freshmen. Physiological and psychological processes related to stresses and strains of daily living and potential relation of these processes to disease states. Examination of multifaceted nature of coping with stressors and exploration of strategies for stress management. P/NP or letter grading.

97. Variable Topics in Psychology. (4) Seminar, three hours. Enforced prerequisite: course 10. Study of selected topics in psychology at introductory level; seminar format designed for freshmen/sophomores. P/NP or letter grading.

Upper Division Courses

100A. Psychological Statistics. (4) Lecture, four hours. Requisites: course 10 with a grade of C or better, and one course from Computer Science 2, Mathematics 2, Program in Computing 10A, Statistics 10, or one term of calculus. Designed for premajors. Basic statistical procedures and their application to research and practice in various areas of psychology. Letter grading.

100B. Research Methods in Psychology. (6) Lecture, two hours; laboratory, four hours. Enforced requisites: courses 10 and 100A, with grades of C or better. Introduction to research methods and critical analysis in psychology. Lecture and laboratory topics include experimental and nonexperimental research

methods, statistical design and analysis as applied to a broad range of basic and applied research issues. P/NP or letter grading.

101. General Psychology Laboratory. (4) Lecture, one hour; laboratory, three hours. Requisites: courses 10, 100A, 100B. General laboratory course for psychology students to acquire key concepts in psychology through active participation in enriched environment. Use of current technologies (e.g., Web-based teaching, interactive computer demonstrations) in challenging atmosphere to learn how mind works. Letter grading.

M107. Asian American Personality and Mental Health. (4) (Same as Asian American Studies M117.) Lecture, three hours. Requisite: course 10. Foundations of personality development and mental health among Asian Americans. Topics include culture, family patterns, achievements, stressors, resources, and immigrant and minority group status. P/NP or letter grading.

110. Fundamentals of Learning. (4) Lecture, three hours; discussion, one hour. Requisites: courses 10, 100A. Designed for juniors/seniors. Experimental findings on animal and human conditioning; retention and transfer of training; relation of learning and motivation. Intended to provide empirical basis for theory and research in this area. P/NP or letter grading.

111. Learning Laboratory. (4) Lecture, two hours; laboratory, three hours. Requisites: courses 10, 100A, 100B, 110. Designed for departmental majors. Laboratory experience with techniques in study of learning, especially with animals. Letter grading.

112A. Basic Processes of Motivated Behavior. (4) Lecture, 90 minutes; discussion, 90 minutes. Requisites: courses 10, 100A, 110. Designed for juniors/seniors. Examination of some basic processes underlying motivated behavior, stressing environmental determinants of behaviors such as feeding, drinking, and reproduction-related behavior. Discussion of physiological mechanisms that contribute to such behaviors. Consideration of topics such as reinforcement, acquired motivation, and drug addiction. Evaluation of evidence obtained in laboratory studies conducted with animals. P/NP or letter grading.

112B. Psychobiology of Fear and Anxiety. (4) Lecture, three hours. Requisites: courses 10, 100A, 110. Recommended: course 115. Designed for juniors/seniors. Presentation of biological and behavioral approaches to fear and anxiety, taken from laboratory and applied research. In addition to overview of major principles from each approach, emphasis on areas in which significant research advances have recently occurred. Examination of concordance and discordance between results from laboratory and applied research. P/NP or letter grading.

112C. Psychobiology of Anxiety and Depression. (4) Lecture, two and one-half hours; discussion, 30 minutes. Requisites: courses 110 and 115, or Neuroscience M101A, M101B, and M101C. Limited to juniors/seniors. Presentation of biological and behavioral approaches to anxiety and depression, taken from laboratory and applied research. In addition to overview of major principles from each approach, emphasis on areas in which significant research advances have recently occurred. Examination of concordance and discordance between results from laboratory and applied research. P/NP or letter grading.

112D. Animal Cognition. (4) Lecture, 90 minutes; discussion, 90 minutes. Requisites: courses 10, 100A, 110. Designed for juniors/seniors. Investigation of scientific study of cognition and behavior in animals. Topics include perception and attention, working and reference memory, spatial cognition, timing and counting, concept formation, and abstract reasoning. Most discussions focus on laboratory findings with animals, as viewed from evolutionary framework concerned with natural histories of animals. P/NP or letter grading.

115. Principles of Behavioral Neuroscience. (4) Lecture, three hours; discussion, one hour. Requisites: course 100A, Life Sciences 2 or 15. Not open to students with credit for course M117A. Designed for

juniors/seniors. Nervous system anatomy, physiology, pharmacology, and their relationship to behavior. P/NP or letter grading.

116. Behavioral Neuroscience Laboratory. (4) Lecture, one hour; laboratory, three hours. Requisites: courses 10, 100A, 100B, 115. Designed for Psychobiology and Psychology majors. Laboratory experience with various topics in behavioral neuroscience. P/NP or letter grading.

M117A-M117B-M117C. Neuroscience: From Molecules to Mind. (5-5-5) (Same as Molecular, Cell, and Developmental Biology M175A-M175B-M175C, Neuroscience M101A-M101B-M101C, and Physiological Science M180A-M180B-M180C.) Lecture, four hours; discussion, 90 minutes. P/NP or letter grading:

M117A. Cellular and Systems Neuroscience. (5) Lecture, four hours; discussion, 90 minutes. Requisites: Chemistry 14C or 30A (14C may be taken concurrently), Life Sciences 2, Physics 1B or 1BH or 6B or 6BH. Not open for credit to students with credit for Physiological Science 111A. For Physiological Science majors only, a grade of C- or better is required to proceed to Physiological Science 111B. Cellular neurophysiology, membrane potential, action potentials, and synaptic transmission. Sensory systems and motor system; how assemblies of neurons process complex information and control movement. P/NP or letter grading.

M117B. Molecular and Developmental Neuroscience. (5) Lecture, four hours; discussion, 90 minutes. Requisites: course 115 or M117A (or Molecular, Cell, and Developmental Biology M175A or Neuroscience M101A or Physiological Science M180A) or Physiological Science 111A, Life Sciences 3, 4. Molecular biology of channels and receptors: focus on voltage dependent channels and neurotransmitter receptors. Molecular biology of supramolecular mechanisms: synaptic transmission, axonal transport, cytoskeleton, and muscle. Classical experiments and modern molecular approaches in developmental neurobiology. P/NP or letter grading.

M117C. Behavioral and Cognitive Neuroscience. (5) Lecture, four hours; discussion, 90 minutes. Requisite: course 115 or M117A (or Molecular, Cell, and Developmental Biology M175A or Neuroscience M101A or Physiological Science M180A) or Physiological Science 111A. Neural mechanisms underlying motivation, learning, and cognition. P/NP or letter grading.

M117J. Biological Bases of Psychiatric Disorders. (4) (Same as Molecular, Cell, and Developmental Biology M181, Neuroscience M130, Physiological Science M181, and Psychiatry M181.) Lecture, three hours. Requisite: course 115 or M117A (or Molecular, Cell, and Developmental Biology M175A or Neuroscience M101A or Physiological Science M180A) or Physiological Science 111A. Underlying brain systems involved in psychiatric symptoms and neurological disorders, including schizophrenia, depression, bipolar disorder, obsessive/compulsive disorder. Provides basic understanding of brain dysfunctions that contribute to disorders and rationales for pharmacological treatments. P/NP or letter grading.

118. Comparative Psychobiology. (4) Requisite: course 115. Designed for junior/senior majors. Survey of determinants of species-specific behavior, including genetic influences and learning.

119A. Neuropsychopharmacology. (4) Lecture, three hours. Requisite: course 115. Designed for juniors/seniors. Analysis of basic pharmacologic principles to include interaction of drugs with neurochemically significant substances in brain.

119B. Human Neurophysiology. (4) Lecture, three hours. Requisite: course 115. Designed for juniors/seniors. Exploration of biological basis of human cognitive processing, with emphasis on function of cerebral cortex.

119C. Cognitive Neuroscience. (4) Lecture, three hours. Requisite: course 115 or M117C. Understanding complex mental functions depends on interplay of cognitive psychology and behavioral neuroscience. Designed to provide advanced undergraduate students with current perspectives on how complex processes of mind may be understood using neuroscience techniques. P/NP or letter grading.

119D. Behavioral Neuropharmacology. (4) Lecture, three hours. Requisite: course 115. Limited to juniors/seniors. Biochemical and neural basis of psychotropic drug action. Particular emphasis on pharmacological regulation of neurotransmission and relationship of these processes to mental disorders. P/NP or letter grading.

119E. Stress and Bodily Disease. (4) Lecture, three hours. Requisite: course 115. Designed for juniors/seniors. Psychobiological processes as they pertain to development of stress responses and disease states. Consideration of stress-related topics, including behavioral and pharmacological variables in stress and stress management.

119F. Neural Basis of Behavior. (4) Lecture, three hours. Requisite: course 115. Designed for juniors/seniors. Presentation of current data and theory concerning how neuron circuits produce behavior. Mechanisms of perception, response selection, motor pattern generation, learning, and motivation, with emphasis on operation of these processes in well-defined neural circuits in animals and humans. P/NP or letter grading.

119G. Brain, Mind, and Motion Pictures. (4) Lecture, 90 minutes; screenings/discussion, two and one half hours. Requisite: course 115. Limited to juniors/seniors. Exploration of cognitive neuroscience of film from three perspectives: how advanced brain research is represented in films of period, how modern cognitive neuroscience explains experience of watching movies, and neuropsychology of acting in movies. P/NP or letter grading.

M119L. Human Neuropsychology. (4) (Same as Neuroscience M119L.) Lecture, three hours. Recommended requisites: courses 115 (or M117A and M117C), 120A or 120B. Designed for juniors/seniors. Survey of experimental and clinical human neuropsychology; neural basis of higher cognitive functions. P/NP or letter grading.

119M. Physiological Psychology of Learning. (4) Lecture, 90 minutes; discussion, 90 minutes. Requisite: course 115. Designed for juniors/seniors. Introduction to classical and current literature on mechanisms of learning, considering both cell-biological mechanisms and brain circuitry.

M119N. Visual System. (4) (Same as Neuroscience M119N.) Lecture, three hours. Requisite: course 115 or Neuroscience M101A or Physiological Science 111A. Ability to image and analyze visual world is truly remarkable feat. Coverage of anatomy and physiology of visual processing from retina to visual cortex through lectures, extensive reading, and discussions. P/NP or letter grading.

M119O. Psychology of Aging. (4) (Same as Gerontology M119O.) Requisite: course 115. Designed for juniors/seniors. Aging refers to developmental changes occurring at end stages of life. Some alterations that occur represent improvement, others are detrimental. Examination of impact of aging process on mental phenomena and exploration of ways in which positive changes can be maximally utilized and impact of detrimental alterations minimized. P/NP or letter grading.

119P. Mapping Mind through Its Molecules. (4) Lecture, four hours. Requisite: course 15 or 115. Designed for juniors/seniors. Explanation of how neural molecules provide unique window into mind. Topics include neurotransmitters, receptors, ion channels, and signal transduction molecules. Roles these molecules play in information processing, consciousness, learning, memory, neural plasticity, degeneration, and psychiatric disorders. P/NP or letter grading.

119Q. Psychobiology of Sleep and Dreams. (4) Lecture, three hours. Requisite: course 115. Designed for juniors/seniors. Review of measurement and comparison of sleep in mammals and submammalian species, circadian rhythms and circadian control of sleep, development and aging of sleep, neural and neurochemical control of sleep, effects of sleep deprivation, sleep in psychiatric disorders, human sleep disorders, and function of dreams. P/NP or letter grading.

119R. Neurobiology of Visual Cognition. (4) Lecture, three hours. Requisite: course 115. Designed for juniors/seniors. Review of some recent advances in understanding of neurobiology of visual cognition. Topics include how is visual information processed by brain to generate actions? How do we recognize objects? How do we perceive emotions displayed by other subjects? P/NP or letter grading.

119S. Neural Basis of Learning and Computing with Neurons. (4) Lecture, three hours. Requisite: course 115. Designed for juniors/seniors. Introduction to neural basis of learning and memory. Examination of current theories of what happens in brain when we learn and acquire new information. Introduction to how brain may use neural networks for learning and pattern recognition. How neural networks perform computations. P/NP or letter grading.

119T. Psychobiology of Sex and Aging. (4) Lecture, three hours. Requisite: course 115. Sexuality in aging from psychobiological and physiological perspectives. Topics include physical and cognitive changes in aging that affect sexual response, with emphasis on differences between females and males concerning aging-related changes, emotional well-being, and human sexual response. P/NP or letter grading.

M119X. Biology and Behavioral Neuroscience of Aging. (4) (Same as Gerontology M119X.) Lecture, three hours. Designed for juniors/seniors. Biologic mechanisms of aging process and its terminal phase, death, have been increasingly studied in recent years. Establishment of what is known experimentally about biology and behavioral neuroscience of aging and evaluation of theories developed to account for this knowledge. P/NP or letter grading.

120A. Cognitive Psychology. (4) Lecture, three hours; discussion, one hour. Requisites: courses 10, 100A. Designed for juniors/seniors. Survey of cognitive psychology: how people acquire, represent, transform, and use verbal and nonverbal information. Perception, attention, imagery, memory, representation of knowledge, language, action, decision making, thinking. P/NP or letter grading.

120B. Sensation and Perception. (4) Lecture, three hours; discussion, one hour. Requisites: courses 10, 100A. Designed for juniors/seniors. Acquisition of information about physical world through basic sensory mechanisms and perceptual processes. Perception of objects, surfaces, space, motion, and events. Connections between information, computations, and biological mechanisms in vision, audition, and other systems. P/NP or letter grading.

121. Laboratory in Cognitive Psychology. (4) Laboratory, four hours. Requisites: courses 10, 100A, 100B, 120A or 120B. Designed for Psychology and Cognitive Science majors. Laboratory experience with methods and phenomena from research on human perception, memory, and cognition. P/NP or letter grading.

124A. Advanced Topics in Sensation and Perception. (4) Lecture, three hours. Requisites: courses 10, 100A, 120A or 120B. Designed for juniors/seniors. Contemporary research and theory about visual and auditory perception. Topics include physiological mechanisms, psychophysical studies and models, and computational approaches. P/NP or letter grading.

124B. Visual Information Processing. (4) Lecture, two hours; discussion, one hour. Requisites: courses 10, 100A, 120A or 120B. Exploration of issues in visual information, such as storage and representation of visual information in memory, pattern recognition, nature and role of attention in visual processing, word and picture recognition, object perception, and imagery. Possible consideration of developmental aspects. P/NP or letter grading.

124C. Human Memory. (4) Lecture, two hours; discussion, one hour. Requisite: course 120A or 120B. Designed for juniors/seniors. Analysis of recent research on basic processes and structural components that comprise the human memory system. Discussion topics include practical implications of such research for instruction, marketing, and witness testimony. P/NP or letter grading.

124D. Principles of Human Performance. (4) Designed for Psychology majors. Investigation into laboratory-based methods and principles of human performance. Major topics include research methods for human performance, central control of movements, anticipation and timing, automaticity, sensory involvement in action such as vision and kinesthesia, role of reflexes, speed-accuracy trade-offs, and individual differences and abilities. Principles discussed should have relevance for numerous real-world situations in which complex perceptual-motor skills are required, such as in industrial or occupational settings, musical performances, vehicle control, and sport.

124E. Language and Cognition. (4) Lecture, three hours. Requisites: courses 10, and 120A or 120B. Designed for juniors/seniors. Recent theories of language and cognition; nature of categories, feedback, and error detection in language and cognition; modularity; ambiguity; knowledge acquisition; processes and representations underlying perception, production, attention, and awareness in language and cognition. P/NP or letter grading.

124F. Thinking. (4) Lecture, three hours. Requisite: course 120A or 120B. Analysis of experimental studies of human categorization, reasonings, decision making, problem solving, creativity, and related topics. P/NP or letter grading.

124G. Cognitive Aging. (4) Lecture, 90 minutes; discussion, 90 minutes. Requisites: courses 10, 100A, 120A or 120B. Designed for juniors/seniors. Recent facts and theories on relations between normal aging and cognition, including perception, language comprehension, learning, memory, thinking, inhibitory processes in attention, sequential processes in action, general slowing phenomenon, and related neuropsychological issues. P/NP or letter grading.

124I. Cognitive Neuroscience of Memory. (4) Lecture, three hours. Requisites: courses 85 or 120A, and 115. Designed for juniors/seniors. Introduction to neural basis of learning and memory. Topics include cellular and molecular mechanisms of learning and memory, human amnesia and hippocampus, working memory and prefrontal cortex, procedural learning, emotional memory systems, and memory consolidation. P/NP or letter grading.

124J. Perception, Learning, and Learning Technology. (4) Seminar, three hours. Requisite: course 120A or 120B. Aspects of perception and cognition as they relate to learning and potential for learning technology. Basic knowledge about visual information processing, perceptual learning, knowledge representation, pattern recognition, attention, memory, and expertise, as well as research on learning, technology, and applications of perceptual and cognitive concepts in specific domains, with special focus on teaching and learning in mathematics. P/NP or letter grading.

125A. Developmental Psychopathology. (4) Seminar, three hours; fieldwork, seven hours. Research approaches utilized by psychologists in Fernald Research Intern Program to conduct research in developmental psychopathology in context of direct experience. Interns provided with necessary background to undertake various research activities during Winter and Spring Quarters. P/NP grading.

125B. Research Methods in Developmental Psychopathology. (4) Laboratory, three hours; fieldwork, seven hours. Limited to departmental majors. Research approaches utilized by psychologists to conduct research in developmental psychopathology. Letter grading.

125C. Advanced Research Methods in Developmental Psychopathology. (4) Laboratory, three hours; fieldwork, seven hours. Limited to departmental majors. Advanced research approaches utilized by psychologists to conduct research in developmental psychopathology. Letter grading.

126. Clinical Psychology Laboratory. (4) Laboratory, four hours. Requisites: courses 10, 100A, 100B, 127. Designed for departmental majors. Methods, designs, and issues in conduct of clinical psychology research. Students develop and conduct research. Content varies by instructor, with concentration on one of following: schizophrenia, mood disorders, anxiety dis-

orders, childhood disorders, psychophysiological methods, observational methods with couples and families. Letter grading.

127A. Abnormal Psychology. (4) (Formerly numbered 127.) Lecture, three hours. Requisite: course 10. Not open for credit to students with credit for course 127B, 127C, or former course 127 or 128. Study of dynamics and prevention of abnormal behavior, including neuroses, psychoses, character disorders, psychosomatic reactions, and other abnormal personality patterns. P/NP or letter grading.

127B. Abnormal Psychology: Biological Bases. (4) Lecture, three hours. Requisite: course 10. Not open for credit to students with credit for course 127A, 127C, or former course 127 or 128. Study of biological substrates of abnormal cognition, behavior, and mood, with particular focus on neuroscience, genetics, physiology, and anatomy of clinical disorders such as schizophrenia, bipolar disorder, major depression, and substance disorders. P/NP or letter grading.

127C. Abnormal Psychology: Developmental Perspectives. (4) Lecture, three hours. Requisite: course 10. Not open for credit to students with credit for course 127A, 127B, or former course 127 or 128. Study of abnormal child development from infancy through adolescence and early adulthood. Clinical disorders include behavioral disorders, learning problems, depression/anxiety, and disorders of development such as autism and mental retardation. P/NP or letter grading.

129A. Personality Measurement. (4) Lecture, three hours. Requisites: courses 10, 100A. Rationale, methods, and content of studies dealing with problems of describing persons in terms of a limited set of dimensions. Detailed consideration of research literature dealing with a few representative personality dimensions. P/NP or letter grading.

129B. Introduction to Psychoanalysis. (4) Lecture, three hours. Requisites: courses 10, 100A. Development of Freud's ideas from 1895 to 1926, with emphasis on how his theory evolved from a drive-based reinforcement model to the structural theory in which unconscious fantasy plays a crucial role. Coverage of developments beyond Freud, especially work of the British school under leadership of Klein, Winnicott, and Bim. P/NP or letter grading.

129C. Culture and Mental Health. (4) Lecture, two hours; discussion, one hour. Requisites: courses 10, 100A. Introduction to study of culture and human behavior in general, and culture and mental health in particular. Emphasis on cultural groups that comprise major U.S. ethnic groups (i.e., African Americans, Latinos/Chicanos, Asian Americans, and American Indians). P/NP or letter grading.

129D. Personality. (4) Lecture, three hours. Requisite: course 10. Survey of major topics in field of personality, including personality theory, personality assessment, and physiological, behavioral, and cultural role of perception, learning, and motivation in personality.

129E. Human Sexuality. (4) Lecture, three hours. Designed for senior Psychology majors. Overview of psychology of human sexuality. Psychological research, assessment, and therapy described in a format which highlights their significance for understanding human sexual functioning. Psychological mechanisms underlying expression of human sexuality.

129F. Clinical Psychology of Childhood and Adolescence. (4) Lecture, two hours; discussion, one hour. Requisite: course 127. Survey of child and adolescent psychopathology and psychotherapy from a developmental perspective. Coverage includes such conditions as anxiety disorders, depression, conduct and attention problems, eating disorders, and autism, with information on prevalence, causes, common treatments and their effects. P/NP or letter grading.

130. Developmental Psychology. (4) Lecture, three hours; discussion, one hour. Requisites: courses 10, 100A. Designed for juniors/seniors. Elaboration of developmental aspects of physical, mental, social, and emotional growth from birth to adolescence. P/NP or letter grading.

131. Research in Developmental Psychology. (4)

Discussion, one hour; laboratory, three hours. Requisites: courses 10, 100A, 100B, and 130 or one course from 133A through 133I. Designed for Psychology and Cognitive Science majors. Forms of scientific writing; ethics of research, especially with minors; special advantages and problems of asking developmental research questions; relevant methodologies for experimental and observational work; data analyses and data presentation options. Letter grading.

132A. Learning Problems, Schooling Problems: Policy and Practice. (4) (Formerly numbered 132.)

Lecture, three hours. Designed for juniors/seniors. Not open for credit to students with credit for former course 132. Exploration of different orientations to persons with learning problems, emphasizing assessment and intervention approaches and psychological impact of such approaches. Topics include interaction of learner and environment, sociopolitical nature of classroom, psychological impact of schooling, grades, and evaluations, process versus goal focus in learning. P/NP or letter grading.

132B. Mental Health in Schools: Policy and Practice. (4)

Seminar, three hours. Limited to juniors/seniors. Policies, models, and mechanisms for mental health in schools. Psychopathology placed into broader perspective of normal development and psychosocial problems to explore range of theoretical, practical, and ethical issues. P/NP or letter grading.

133A. Adolescent Development. (4) Lecture, three hours. Requisites: courses 10, 100A. Examination of cognitive, social, physical, and physiological development of the adolescent. P/NP or letter grading.

133B. Cognitive Development. (4) Lecture, three hours. Requisites: courses 10, 100A. Major theories, approaches, and issues in study of cognitive development. Readings include original research on important topics such as development of perception, language, thinking, and problem solving, and acquisition of concepts and domain-specific language. P/NP or letter grading.

133C. Language Development. (4) Lecture, three hours. Requisites: courses 10, 100A. Application of principles of cognitive development, learning, and perception to study of language development. Topics include first and second language acquisition (sounds, meanings, grammatical structures), learning mechanisms, communication skills, and relation between language and thought in children. P/NP or letter grading.

133D. Social and Personality Development. (4)

Lecture, three hours. Requisites: courses 10, 100A. Theory and research on social and personality development during childhood. Topics include parent/child attachment, temperament, self-control, aggression, sex-typing, self-concept, moral reasoning and behavior, social status and social skills, and peer group relations. P/NP or letter grading.

133E. Perceptual Development. (4)

Lecture, three hours. Requisites: courses 10, 100A. Topics include origins and development of human perceptual abilities, origins of knowledge about functionally important aspects of the environment, ecological and computational issues in perception, research and theory about initial perceptual capacities, and some sensory foundations. P/NP or letter grading.

133F. Psychology and Education. (4)

Lecture, three hours. Requisites: courses 10, 100A. Application of principles of cognitive development, learning, and perception to educational problems. Topics include general instructional issues, psychology of reading and mathematics, exceptional children, early childhood education, and education of the disadvantaged. P/NP or letter grading.

133G. Culture and Human Development. (4)

Lecture, three hours; discussion, one hour. Requisites: courses 10, 100A. Role of culture in human development through psychology, anthropology, and autobiography. Students relate material from lectures and readings, through empirical research projects, to diverse cultural backgrounds in class, at UCLA, and in the broader community. P/NP or letter grading.

133I. Applied Developmental Psychology. (4) Lecture, three hours. Requisites: courses 10, 100A. Application of developmental psychology to issues pertaining to improving well-being of children and their families. Topics include quality of child care, patterns and ranges of normal child behaviors, developmental disabilities, safety, legal, and public policy issues, child-rearing practices. P/NP or letter grading.

134A. Applied Developmental Psychology: Infant/Toddler Care and Education. (4)

Lecture, three hours. Designed for Applied Developmental Psychology minors. Coverage of children zero to three years old. Topics include physical, cognitive, social, and emotional development of children, developmentally appropriate practices, child care quality, role of educator/caregiver, and other related issues. Letter grading.

134B. Applied Developmental Psychology: Preschool/School-Age Care and Education. (4)

Lecture, three hours. Designed for Applied Developmental Psychology minors. Coverage of children three to eight years old. Topics include physical, cognitive, social, and emotional development of children, developmentally appropriate practices, child care quality, role of educator/caregiver, and other related issues. Letter grading.

134C. Advanced Applied Developmental Psychology. (4)

Seminar, one hour; fieldwork, eight hours. Requisites: courses 134A, 134B, 134D, 134E. Designed for Applied Developmental Psychology minors. Continuing fieldwork in advanced applications of developmental psychology to support and illustrate, in applied setting, theories and research findings presented in lecture. P/NP grading.

134D. Fieldwork in Applied Developmental Psychology. (2)

Fieldwork, 86 hours per term. Enforced corequisite: course 134A. Designed for Applied Developmental Psychology minors. Fieldwork in applications of developmental psychology to support and illustrate, in applied setting, theories and research findings presented in lecture. P/NP grading.

134E. Advanced Fieldwork in Applied Developmental Psychology. (2)

Fieldwork, 86 hours per term. Enforced corequisite: course 134B. Designed for Applied Developmental Psychology minors. Fieldwork in advanced applications of developmental psychology to support and illustrate, in applied setting, theories and research findings presented in lecture. P/NP grading.

134F. Infant Care and Development. (4)

Lecture, three hours. Requisites: course 10, one course from 130 or 133B through 133I, one statistics course. In-depth study of research methods, current research findings, and theories used to understand infant development from conception through second year of life, including cross-cultural application of this knowledge to various populations. P/NP or letter grading.

134G. Early Childhood Curriculum. (4)

Lecture, three hours. Requisites: course 10, one course from 130 or 133B through 133I, one statistics course. Examination of methods, materials, and philosophies that enhance development of children in context of childcare settings. Topics include issues of multiculturalism, antibias curriculum, and special needs adaptations. P/NP or letter grading.

134I. Child, Family, and Community. (4)

Lecture, three hours. Requisites: course 10, one course from 130 or 133B through 133I, one statistics course. Exploration of role of early childhood educators within context of diverse racial, ethnic, economic, and cultural backgrounds and impact of these dynamics on children's development. P/NP or letter grading.

135. Social Psychology. (4)

Lecture, three hours; discussion, one hour. Requisites: courses 10, 100A. Designed for juniors/seniors. Interrelationships between the individual and his social environment. Social influences on motivation, perception, and behavior. Development and change of attitudes and opinions. Psychological analysis of small groups, social stratification, and mass phenomena. P/NP or letter grading.

136A. Social Psychology Laboratory. (4)

Lecture, one hour; laboratory, four hours. Requisites: courses 10, 100A, 100B, 135. Designed for Psychology majors. Introduction to research designs and methods

used to test social psychological hypothesis, including experiments, observation, content analysis, and/or questionnaires. P/NP or letter grading.

136B. Nonexperimental Methods in Social Psychology. (4)

Lecture, two hours; laboratory, two hours. Requisites: courses 10, 100A, 100B, 135. Designed for Psychology majors. Research experience with nonexperimental methods for study of social attitudes or behavior, including fieldwork with survey research, naturalistic observation, or questionnaires. P/NP or letter grading.

136C. Survey Methods in Psychology. (4)

Lecture, two hours; laboratory, three hours. Requisites: courses 10, 100A, 100B, 135. Designed for Psychology majors. Survey research in psychology, with particular emphasis on surveys of social and political attitudes. Actual experience in systematic survey research such as that done by media polling agencies, market research companies, and academic survey research centers. Topics include survey design, sampling, interviewing techniques, response rates, questionnaire design, data coding, and analysis. Training in telephone interviewing techniques in laboratories. P/NP or letter grading.

137A. Sport Psychology. (4)

Lecture, three hours. Designed for junior/senior Psychology majors. Introduction to field of sport psychology. Coverage of research and applied aspects of a range of topics, including youth sport participants as well as world-class performers.

137C. Intimate Relationships. (4)

Lecture, three hours. Requisites: courses 10, 100A. Limited to juniors/seniors. Not open for credit to students with credit for former course M176. Introduction to how social scientists think about, study, and treat intimate relationships, with emphasis on understanding how relationships change over time. Topics include attraction, relationship formation, conflict resolution, social support, sex, role of individual differences, and external circumstances. P/NP or letter grading.

M137E. Work Behavior of Women and Men. (4)

(Same as Women's Studies M137E.) Lecture, two and one-half hours. Requisite: course 10 or Women's Studies 10. Designed for seniors. Examination of work behavior of women and men. Topics include antecedents of career choice, job findings, leadership, performance evaluation, discrimination and evaluation bias, job satisfaction, and interdependence of work and family roles. P/NP or letter grading.

137F. Introduction to Sport Psychology. (4)

Lecture, three hours. Designed for juniors/seniors. Survey of topics in sport psychology, including leadership and team dynamics, moral development and aggression, personality, motivation, fan behavior, and performance enhancement. Consideration of youth sport through world-class athletics. P/NP or letter grading.

137I. Interpersonal Influence and Social Power. (4)

Lecture, three hours. Requisite: course 135. Theory and research focusing on how people influence one another and resist such influence, and on the bases of social power. Motivations and effects of influence for the powerholder and target of influence. Applications to such problems and issues as power and leadership in organizations, interpersonal influence and health, power relationships in the family, interpersonal influence in everyday life, social power of political figures.

M138. Electoral Politics: Political Psychology. (4)

(Same as Political Science M141A.) Lecture, three or four hours; discussion, one hour (when scheduled). Requisite: course 10. Designed for juniors/seniors. Examination of political behavior, political socialization, personality and politics, racial conflict, and psychological analysis of public opinion on these issues.

M140. Introduction to Study of Aging. (4)

(Same as Gerontology M140 and Social Welfare M140.) Lecture, three hours. Designed for juniors/seniors. Perspectives on major features of human aging—biological, social, psychological, and humanistic. Introduction to information on the range of influences on aging to prepare students for subsequent specialization. P/NP or letter grading.

142H. Advanced Statistical Methods in Psychology (Honors). (4) Lecture, three hours; laboratory, two hours. Requisites: courses 100A, 100B. Survey of statistical techniques commonly used in psychology, education, and behavioral and social sciences: correlational techniques, analysis variance, and multiple regression. P/NP or letter grading.

M144. Measurement and Its Applications. (4) (Same as Statistics M154.) Lecture, three hours. Requisite: one course from 100A, Statistics 10, 11, 12, 13, or 14. Selected theories for quantification of psychological, educational, social, and behavioral science data. Classical test, factor analysis, generalizability, item response, optimal scaling, ordinal measurement, computer-adaptive, and related theories. Construction of tests and measures and their reliability, validity, and bias. P/NP or letter grading.

M147A. Psychology of Lesbian Experience. (4) (Same as Lesbian, Gay, Bisexual, and Transgender Studies M147A and Women's Studies M147A.) Lecture, two hours; discussion, one hour. Requisite: course 10 or Lesbian, Gay, Bisexual, and Transgender Studies M114 or Women's Studies 10. Designed for juniors/seniors. Review of research and theory in psychology and women's studies to examine various aspects of lesbian experience, impact of heterosexism/stigma, gender role socialization, minority status of women and lesbians, identity development within a multicultural society, changes in psychological theories about lesbians in sociohistorical context. P/NP or letter grading.

150. Introduction to Health Psychology. (4) (Formerly numbered 137D.) Lecture, three hours. Requisite: course 10. Not open for credit to students with credit for former course 137D. Areas of health, illness, treatment, and delivery of treatment that can be elucidated by understanding of psychological concepts and research, psychological perspective on these problems, and how psychological perspective might be enlarged and extended in medical area. P/NP or letter grading.

151. Research Methods in Health Psychology. (4) (Formerly numbered 136D.) Laboratory, four hours. Requisites: courses 10, 100A, 100B, 135. Not open for credit to students with credit for former course 136D. Research methods used in health psychology, including experimental, quasi-experimental, and non-experimental methods. Examples and projects from health psychology. Letter grading.

160. Genetics of Human Cognition and Behavior. (4) Lecture, three hours. Requisites: courses 10, 127. Limited to juniors/seniors. Survey of field of behavior genetics, including methods for determining genetic and environmental influences and for locating and characterizing genes impacting these traits, as well as current knowledge of genetic contributions to cognition and behavior and disorders thereof. P/NP or letter grading.

M163. Death, Suicide, and Trauma. (4) (Same as Sociology M138.) Lecture, three hours; discussion, one hour. Sociological analysis of incidence of violent death. Suicide is eighth leading cause of death in U.S. and third leading cause for young people aged 15 to 24. Both kinds of violent deaths are often dismissed as extreme psychopathology, reflecting individual mental health issues. Sociologists argue that suicide and homicide are social facts. Suicide and homicide do not occur randomly in society but are stratified according to social factors such as age, gender, race, sexual orientation, and class. Analysis of strength of this sociological argument and evaluation of explanatory potential of different theories to make sense of violent death, paying particular attention to forensic and medicolegal system to determine suicide and solve homicides. Review of historic and contemporary studies to examine how research and conceptualizations of suicide and homicide have changed, as well as social responses to these phenomena. P/NP or letter grading.

M165. Psychology of Gender. (4) (Same as Women's Studies M165.) Lecture, three hours. Consideration of psychological literature relevant to understanding contemporary sex differences. Topics include sex-role development and role conflict,

physiological and personality differences between men and women, sex differences in intellectual abilities and achievement, and impact of gender on social interaction. P/NP or letter grading.

M172. Afro-American Woman in U.S. (4) (Same as Afro-American Studies M172 and Women's Studies M172.) Lecture, two and one-half hours. Designed for juniors/seniors. Impact of social, psychological, political, and economic forces which impact on interpersonal relationships of Afro-American women as members of large society and as members of their biological and ethnic group. P/NP or letter grading.

173. Advanced Abnormal Psychology. (4) Lecture, three hours. Requisites: courses 10, 100A, 127. Examination of research and theory concerning origins, course, and outcomes of disordered behavior. Focus on continuity and change in patterns of behavior, assessment methods, and research approaches. Concentration on one of following: childhood disorders, anxiety and stress, the schizophrenias, or mood disorders. P/NP or letter grading.

175. Community Psychology. (4) Designed for junior/senior Psychology majors. Application of psychological principles to understanding and solution of community problems. Topics include community development, community mental health problems, drugs, racism, and rehabilitation of prisoners.

177. Counseling Relationships. (4) Lecture, two hours; discussion, two hours. Requisites: courses 10, 100A, 127. Designed for junior/senior Psychology majors. Conceptual and empirical foundations of psychological counseling; comparison of alternative models of counseling processes. Emphasis on counseling approaches in community mental health areas such as drug abuse, suicide prevention, and crisis intervention. P/NP or letter grading.

178. Human Motivation. (4) Lecture, three hours. Designed for juniors/seniors. Examination of theories of human motivation, experimental findings supporting the theories, and history of study of motivation. Topics include sociobiology, conflict, aspiration level, achievement strivings, and causal attributions.

179A. Health Behavior and Health Status of Ethnic Groups: Behavioral Perspective. (4) Lecture, three hours. Requisite: course 10. Designed for juniors/seniors. Survey course of psychological aspects of health behavior and health status in major ethnic groups in the U.S. Emphasis on major diseases outlined by the U.S. Public Health Service (USPHS).

179B. Biomedical and Psychosocial Aspects of AIDS/HIV. (4) Lecture, three hours. Requisite: course 150 or 179A or Health Services 100. Designed for juniors/seniors. Basics of epidemiology of AIDS, routes of transmission, clinical characteristics of AIDS, neurological and psychological aspects of coping with HIV infection and AIDS. Presentation of biologic, behavioral, and therapeutic interventions. P/NP or letter grading.

M180. Contemporary Problems in Developmental Disabilities. (4) (Same as Psychiatry M180.) Seminar, three hours. Corequisite: course M181A. Limited to Developmental Disabilities Program students. Examination of broad spectrum of issues related to mental retardation, intelligence and IQ, genetics, neurobiology, and other developmental disabilities. P/NP or letter grading.

M181A. Research in Contemporary Problems in Developmental Disabilities. (4) (Same as Psychiatry M181A.) Lecture, one hour; laboratory, eight hours. Corequisite: course M180. Limited to Developmental Disabilities Program students. Research experience. In Progress grading (credit to be given only on completion of course M181B).

M181B. Research in Contemporary Problems in Developmental Disabilities. (4) (Same as Psychiatry M181B.) Lecture, one hour; laboratory, eight hours. Requisite: course M181A. Limited to Developmental Disabilities Program students. Research experience. Letter grading.

184A-184B. Psychology Research Opportunity Program Seminars. (2-2) Seminar, 90 minutes. Designed to bring together Psychology Research Opportunity Program (PROPS) students undertaking super-

vised tutorial research in seminar setting with one or more faculty members to discuss their own work or related work in discipline. Led by one supervising faculty member. P/NP grading.

185. Research Practicum in Psychology. (3) Laboratory, seven hours. Corequisite: course 194D. Limited to juniors/seniors. Practical applications of psychology through research under guidance of faculty mentor. Only 12 units from any combination of courses 185, 192, 194, 195, and 196 may be applied toward undergraduate degree. May not be applied toward course requirements for any Psychology Department major. Individual contract required. Information and contracts may be obtained from Undergraduate Advising Office, 1531 Franz Hall. P/NP grading.

186A. Cognitive Science Laboratory: Introduction to Theory and Simulation. (4) Laboratory, four hours. Requisites: courses 10, 85, 100A, 100B, Program in Computing 10A, 10B. Designed for junior/senior departmental majors. Models of cognition within framework of explanation at multiple levels of abstraction. Examples of elementary models in multiple psychological domains (e.g., visual perception, categorization, learning, reasoning, and problem solving). Types of models include neural networks and symbolic models. Lectures and discussions interwoven with computer simulations written in Matlab. P/NP or letter grading.

186B. Cognitive Science Laboratory: Neural Networks. (4) Laboratory, four hours. Requisites: courses 10, 85, 100A, 100B, Mathematics 31A, 31B, Program in Computing 10A, 10B. Designed for junior/senior departmental majors. Laboratory experience in neural network modeling of perception and cognition. Specific topics include essential neurophysiology, basic architectures, learning, and programming techniques. Principles illustrated and discussed in context of models of specific perceptual and cognitive processes. Simulations written in Pascal. P/NP or letter grading.

186C. Cognitive Science Laboratory: Psychophysical Theories and Methods. (4) Lecture, two hours; laboratory, two hours. Requisites: courses 10, 85, 100A, 100B. Designed for junior/senior departmental majors. Lectures and laboratory work that examine perceptual measurement procedures (psychophysical methods) and cognitive processing and decision models on which procedures are based, with particular emphasis on signal detection theory and its applications. Letter grading.

186D. Neuroinformatics Studio. (4) Laboratory, four hours. Requisites: courses 10, 100A, 100B, 115. Limited to departmental majors. Neuroinformatics is application of informatic methods to study of neuroscience and behavior. In digital studio environment, application of such methods to problems in neuron electrophysiology, neural networks, neuroanatomy, and neurogenetics. Letter grading.

187A. Psychology and Law. (4) Lecture, two hours; discussion, two hours. Designed for juniors/seniors. Study of new topics on legal psychology, including suspect identification, witness reports, and police procedures. Outside speakers utilized in presentation of these materials. Students participate in presentations and/or discussions.

187B. Advanced Psychology and Law. (4) Lecture, three hours; discussion, one hour. Requisite: course 187A. Designed for juniors/seniors. Study of additional topics on legal psychology, including gang violence, theories of crime, corrections, repeat offenders, community policing, and interrogation. Outside speakers utilized in presentation of these materials. P/NP or letter grading.

187C. Sex and Law. (4) Lecture, three hours. Limited to juniors/seniors. Examination of Constitutional foundation for sexual rights in America, with focus on freedoms of speech and press, right to privacy, and Ninth Amendment rights reserved by the people. P/NP or letter grading.

188A. Special Seminars: Psychology. (4) Seminar, three hours. Limited to juniors/seniors. Departmentally sponsored experimental or temporary seminars on selected topics in psychology, such as those taught

by visiting faculty members. Reading, discussion, and development of culminating project. May be repeated for credit. P/NP or letter grading.

188B. Special Courses in Psychology. (4) Lecture, three hours. Designed for junior/senior majors. Departmentally sponsored experimental or temporary courses on topics of psychological interest, such as those taught by visiting faculty members. Consult *Schedule of Classes* for topics and instructors. May be repeated for credit. P/NP or letter grading.

190. Research Colloquia in Psychology. (1) Seminar, one hour. Designed to bring together students undertaking supervised tutorial research in seminar setting with one or more faculty members to discuss their own work or related work in discipline. Led by one supervising faculty member. May be repeated for credit. P/NP grading.

191. Variable Topics Research Seminars: Psychology. (1) Seminar, one hour. Limited to juniors/seniors. Research seminar on selected topics in psychology. Reading, discussion, and development of culminating project. May be repeated for credit. P/NP grading.

191AH-191BH-191CH. Departmental Honors Research Seminars. (2-2-2) Seminar, two hours. Enforced corequisite: course 198. Course 191AH is requisite to 191BH, which is requisite to 191CH. Limited to psychology honors program students. Opportunity for development and analysis of creative ideas through individual research projects with faculty sponsor and discussion of student and faculty research presentations. Information and applications may be obtained from Undergraduate Advising Office, 1531 Franz Hall. If approved in advance by Undergraduate Office, courses 191CH and 198 may be applied toward elective course requirement for any Psychology Department major. Letter grading.

192. Education Practices in Psychology. (4) Seminar, three hours. Limited to juniors/seniors. Training and supervised practicum for advanced undergraduate students to assist in courses related to psychology. Students assist in preparation of materials and development of innovative programs under guidance of faculty members and teaching assistants. Only 12 units from any combination of courses 185, 192, 194, 195, and 196 may be applied toward undergraduate degree. May not be applied toward course requirements for any Psychology Department major. Individual contract required. Information and contracts may be obtained from Undergraduate Advising Office, 1531 Franz Hall. P/NP grading.

193. Journal Club Seminars: Psychology. (1) Seminar, one hour. Limited to undergraduate students. Discussion of readings selected from current literature of particular field or attendance at and write-ups of speakers series. May be repeated for credit. P/NP grading.

194A. Internship Seminars: Psychology. (2) Seminar, two hours. Corequisite: course 195A. Study of research methods, applications, and current literature through group discussion, presentation, and papers. Research fields and topics vary by instructor. Only 12 units from any combination of courses 185, 192, 194, 195, and 196 may be applied toward undergraduate degree. May not be applied toward course requirements for any Psychology Department major. Individual contract required. Information and contracts may be obtained from Undergraduate Advising Office, 1531 Franz Hall. P/NP grading.

194B. Research Group Seminars: Psychology. (1) Seminar, one hour. Corequisite: course 196A (3-unit option). Limited to juniors/seniors who are part of research group. Discussion of research methods and current literature in field or of research of faculty members or students. Only 12 units from any combination of courses 185, 192, 194, 195, and 196 may be applied toward undergraduate degree. May not be applied toward course requirements for any Psychology Department major. Individual contract required. Information and contracts may be obtained from Undergraduate Advising Office, 1531 Franz Hall. P/NP grading.

194C. Research Group Seminars: Cognitive Science. (1) Seminar, one hour. Corequisite: course 196B (3-unit option). Limited to junior/senior Cognitive Science majors who are part of research group. Dis-

ussion of research methods and current literature in field or of research of faculty members or students. Only 12 units from any combination of courses 185, 192, 194, 195, and 196 may be applied toward undergraduate degree. May be applied toward course requirements for Cognitive Science major. Individual contract required. Information and contracts may be obtained from Undergraduate Advising Office, 1531 Franz Hall. P/NP grading.

C194D. Research Group Seminars: Practicum. (1) (Formerly numbered 194D.) Seminar, one hour. Corequisite: course 185. Designed for undergraduate students who are part of research group that meets with graduate students. Discussion of research methods and current literature in field or of research of faculty members or students. Only 12 units from any combination of courses 185, 192, 194, 195, and 196 may be applied toward undergraduate degree. May not be applied toward course requirements for any Psychology Department major. Individual contract required. Information and contracts may be obtained from Undergraduate Advising Office, 1531 Franz Hall. Concurrently scheduled with course C296B. P/NP grading.

195A. Community Internships in Psychology. (2) Tutorial (approved community setting), six hours. Corequisite: course 194A. Limited to juniors/seniors. Internship in applications of psychology in supervised setting in community agency or business. Students meet on regular basis with sponsor and provide periodic reports of their experience. Only 12 units from any combination of courses 185, 192, 194, 195, and 196 may be applied toward undergraduate degree. May not be applied toward course requirements for any Psychology Department major. Individual contract with supervising placement sponsor required. Information and contracts may be obtained from Undergraduate Advising Office, 1531 Franz Hall. P/NP grading.

195B. Corporate Internships in Cognitive Science. (4) Tutorial, eight hours. Limited to junior/senior Cognitive Science majors. Practical applications of cognitive science through internship experience in supervised setting. Students meet on regular basis with supervisor and provide periodic reports of their experience. Only 12 units from any combination of courses 185, 192, 194, 195, and 196 may be applied toward undergraduate degree. May be applied toward course requirements for Cognitive Science major. Individual contract with supervisor required. Information and contracts may be obtained from Undergraduate Advising Office, 1531 Franz Hall. P/NP grading.

196A. Research Apprenticeship in Psychology. (3 to 4) Tutorial, eight hours. Corequisite: course 194B. Limited to juniors/seniors. Practical applications of psychology through research under guidance of faculty mentor. Only 12 units from any combination of courses 185, 192, 194, 195, and 196 may be applied toward undergraduate degree. May not be applied toward course requirements for any Psychology Department major. Individual contract required. Information and contracts may be obtained from Undergraduate Advising Office, 1531 Franz Hall. P/NP grading.

196B. Research Apprenticeship in Cognitive Science. (3 to 4) Tutorial, eight hours. Corequisite: course 194C. Limited to junior/senior Cognitive Science majors. Practical applications of cognitive science through research under guidance of faculty mentor. Only 12 units from any combination of courses 185, 192, 194, 195, and 196 may be applied toward undergraduate degree. May be applied toward course requirements for Cognitive Science major. Individual contract required. Information and contracts may be obtained from Undergraduate Advising Office, 1531 Franz Hall. P/NP grading.

198. Honors Research in Psychology. (2) Tutorial, two hours. Enforced corequisite: course 191AH or 191BH or 191CH. Limited to juniors/seniors and psychology honors program students. Development and completion of honors thesis or comprehensive research project under direct supervision of faculty member. May be repeated for credit. Individual contract required. Information and contracts may be obtained from Undergraduate Advising Office, 1531 Franz Hall. Letter grading.

199A. Senior Project in Psychology. (4) Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research under guidance of psychology faculty mentor. Culminating paper required. Only one 4-unit 199 course may be taken per term. May be repeated for credit. Individual contract required. Information and contracts may be obtained from Undergraduate Advising Office, 1531 Franz Hall. P/NP grading.

199B. Senior Project in Psychology. (4) Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research under guidance of psychology faculty mentor. Culminating paper required. Only one 4-unit 199 course may be taken per term. May be taken only once for letter grade. Individual contract required. Information and contracts may be obtained from Undergraduate Advising Office, 1531 Franz Hall. Letter grading.

Graduate Courses

200A. Pavlovian Processes. (4) Lecture, three hours. Basic principles and characteristics of learning and behavior, including Pavlovian conditioning, instrumental learning, and species-specific behavior. S/U or letter grading.

200B. Instrumental Conditioning. (4) Lecture, three hours. Topics include animal learning and conditioning and application of learning principles to goal-directed action, motivational processes, and goal selection in nonhuman animals. S/U or letter grading.

200C. Representational Processes. (4) Lecture, three hours. Preparation: undergraduate learning and physiological psychology courses. Review of experimental data on and models of construction of spatial, temporal, and numerical representations. Explicitly symbolic models compared and contrasted with associative models. Implications for neurobiology of learning and memory. S/U or letter grading.

201. Current Issues in Learning and Behavior. (1) Discussion, 90 minutes. Designed for graduate students. Required of learning and behavior students a minimum of four times (entire first year and winter of second year). Presentation of papers of current interest in learning, behavior, or applied behavioral analyses by experts in the field. Evaluation of their significance and methodology in detail. May be repeated for credit. S/U grading.

202. Research in Learning and Behavior. (2) Forum in which graduate students discuss the literature and methodological, analytical, and interpretational issues related to specific topics of research in learning and behavior. S/U grading.

204A. Basic Motivational Processes. (4) Lecture, three hours. Designed for graduate students. Analysis, using behavioral systems approach, of basic motivated behavior such as feeding, drinking, foraging, and reproduction. Same approach also applied to phenomena such as acquired motivation, reinforcement, and drug addiction. Historical survey of behavioral analyses of motivation and goal-directed behavior. S/U or letter grading.

204B. Theories of Learning. (4) Discussion, three hours. Requisite: course 200A. Critical discussion and in-depth analysis of current major theoretical approaches to associative learning, with emphasis on recent experimental analyses of conditioning phenomena.

204C. Evaluative Processes. (4) Lecture, three hours. Designed for graduate psychology students. Lectures and discussion on current research in application of learning principles to clinical and social problems such as alcohol and drug abuse, aggression, fear management, mental retardation, behavioral medicine, autism/schizophrenia, etc. S/U or letter grading.

204D. Fear and Anxiety. (4) Lecture, three hours. Preparation: graduate training. Presentation of theoretical and empirical advances, from biological and behavioral perspectives, in the area of fear and anxiety. Integration of animal and human research.

205A. Cortical Plasticity and Perceptual Learning. (2) Lecture, three hours. Designed for graduate students. Examination of neural basis of perceptual learning. Overview of literature on cortical plasticity and how it relates to different forms of perceptual

learning in visual, auditory, and somatosensory modalities. Review of mechanisms of cortical plasticity, including basic features of long-term synaptic plasticity and computational models of cortical processing. Letter grading.

205B. Human Neurophysiology. (2) Lecture, three hours. Designed for graduate students. Examination of higher cognitive processes in terms of neural mechanisms that underlie them. Topics include cortical modularity and organization, coordinated sensory representation, language, regional functional specialization, attention, and regulation of cortical function by extracortical systems. Letter grading.

205C. Neurotransmitters in Human Disorders of Motor and Cognitive Function. (2) Lecture, three hours. Designed for graduate students. Detailed analysis of molecules involved in interneuronal communication processes (i.e., neurotransmitters, neurohormones, "neuromodulators," neurotropic agents). Discussion of their roles in normal brain physiology, followed by detailed analyses of their perturbations in various disease states. Particular emphasis on current and past thinking about Alzheimer's disease, Parkinsonism, Huntington's disease, and Down's syndrome dementia. Letter grading.

205D. Clinical Psychopharmacology. (2) Lecture, three hours. Designed for graduate students. General principles of brain neurotransmitters, including synthesis, cell bodies and pathways, and receptor subtypes. General principles of drug administration and pharmacokinetics. Major classes of psychoactive drugs, animal models, and "atypical" compounds. Letter grading.

205E. Psychobiology of Emotion and Stress. (2) Lecture, three hours. Designed for graduate students. Overview of literature on role of brain and autonomic and endocrine systems in emotion and stress-related responses. Some emphasis on involvement of neurotransmitters, neuropeptides, and hormones in emotional plasticity, visceral function, and bodily diseases. Letter grading.

205F. Physiology of Learning. (2) Lecture, three hours. Designed for graduate students. Search for anatomical loci of engrams. Cell biology of plasticity, including electrophysiological and molecular approaches. Theories of how neural circuitry might be organized to make learning possible. Letter grading.

205G. Behavior Genetics. (2) (Not same as course 205G prior to Winter Quarter 2008.) Lecture, three hours. Designed for graduate students. In-depth analysis of field of behavior genetics, including methods for determining genetic and environmental influences and for locating and characterizing genes impacting these traits, as well as current knowledge of genetic contributions to cognition and behavior and disorders thereof. Letter grading.

205K. Vision Neurobiology. (2) Lecture, three hours. Designed for graduate students. Exploration of anatomy, physiology, and computation in visual system, focusing on retina, visual cortex, and overall performance. Letter grading.

205L. Cognitive Neuroscience. (2) Lecture, three hours. Designed for graduate students. Overview of neural basis of higher cognitive functions, integrating anatomical, physiological, and behavioral approaches and incorporating clinical and experimental data. Systems covered include attention, perception, memory, language, and hemispheric specialization. Letter grading.

205M. Neuropsychology of Perception. (2) Lecture, three hours (five weeks). Designed for graduate students. Examination of neural substrates of high-level visual processing. Topics include agnosias and characteristics of electrophysiological responses recorded in primate temporal lobe. Discussion of issues regarding neural representation of knowledge. Letter grading.

205N. Functional Neuroimaging. (4) Lecture, three hours. Designed for graduate students. Theory and practice of measuring neural activity in human brain. Methods include electroencephalography, positron

emission tomography, and functional magnetic resonance imaging. Domains include memory, vision, language, attention, and emotion. S/U or letter grading.

207A-207B-207C. Seminars: Physiological Psychology. (4-4-4) Requisite: course 115. S/U or letter grading.

M208. Biology of Learning and Memory. (4) (Same as Molecular, Cellular, and Integrative Physiology M200G, Neurobiology M200G, and Neuroscience M220.) Lecture, four hours. Molecular, cellular, circuit, systems, neuroanatomy, theory, and models of learning and memory. Cross-disciplinary focus on learning and memory to provide integrative view of subject that emphasizes emerging findings that take advantage of novel groundbreaking models. Letter grading.

210. Comparative Psychobiology. (4) Requisite: course 115. Survey of determinants of species-specific behavior, including genetic influences and learning.

212. Evaluation of Research Literature in Physiological Psychology. (1) Discussion, 90 minutes. Papers of current interest presented by members of seminar and their significance and methodology discussed and criticized in depth. May be repeated for credit. S/U grading.

M213. Neuroimaging and Brain Mapping. (4) (Same as Neuroscience CM272 and Physiological Science M272.) Lecture, three hours. Requisites: Neuroscience M201, M202. Theory, methods, applications, assumptions, and limitations of neuroimaging. Techniques, biological questions, and results. Brain structure, brain function, and their relationship discussed with regard to imaging. Letter grading.

215A. Health Psychology. (4) (Formerly numbered 227.) Lecture, three hours. Preparation: undergraduate degree or training in psychology. Psychological and social factors involved in etiology of illness, treatment and course of illness, long-term care and adjustment of chronically ill or disabled, and practice of institutional healthcare and self-care. Letter grading.

215B. Human Physiology in Social and Behavioral Science. (4) Lecture, three hours. Limited to graduate students. Designed to provide students with understanding of basic anatomy and activities of biological systems that relate psychological factors to health, and interconnections between these systems. Letter grading.

220A. Social Psychology. (4) Lecture, three hours. Designed for graduate psychology students. Intensive consideration of concepts, theories, and major problems in social psychology.

220B. Research Methods in Social Psychology. (4) Lecture, three hours. Designed for graduate psychology students. Research design and methodological issues in experimental and nonexperimental social research.

220C. Advanced Social Psychology. (4) Lecture, three hours. Requisite: course 220A or 220D. Review of contemporary topics and issues in social psychological research and theory.

220D. Introduction to Social Psychology. (4) Lecture, three hours. Designed for graduate students. Introduction to theory and research in social psychology for students who are not psychology majors. Service course for graduate students in education, sociology, political science, management, public health, etc.

221. Seminar: Attitude Formation and Change. (4) Seminar, three hours. Requisites: courses 220A, 220B. Social psychological research and theories on opinions and attitudes. Effects of mass communication, social factors in assimilation of information and influence. S/U or letter grading.

222A. Interpersonal Relations. (4) Discussion, three hours. Requisite: course 220A. Critical review of theory and research on interpersonal relations, with emphasis on friendship, dating, and marriage.

222B. Interpersonal Influence and Social Power. (4) Seminar, three hours. Preparation: advanced social psychology course (psychological or sociological). Review of theory and research on interpersonal influence and social power, with applications to various power relationships such as supervisor/subordi-

nate, healthcare professional/patient, doctor/nurse, parent/child, wife/husband, teacher/student, political figures, etc. S/U or letter grading.

222C. Psychology of Intergroup Relations. (4) Lecture, three hours. Designed for graduate students. In-depth and comprehensive exposure to major theoretical and methodological issues within domain of intergroup relations research. Approaches not simply restricted to work within psychology but across social sciences in general, including anthropology, political science, and sociology. S/U or letter grading.

223. Seminar: Social Survey Research. (4) Seminar, three hours. Requisite: course 220B. Contemporary issues and topics in social survey research methodology.

225. Seminar: Critical Problems in Social Psychology. (4) Seminar, three hours. Requisites: courses 220A, 220B. May be repeated for credit with consent of instructor. S/U or letter grading.

226A-226B-226C. Current Literature in Social Psychology. (2-2-2) Discussion, 90 minutes. Course 226A is limited to first-year social psychology students. Courses 226B and 226C are open to nonsocial psychology students with consent of instructor. Recent and current research papers in social psychology presented by members of seminar and their significance and methodology discussed and criticized in depth. S/U grading.

M228A. Proseminar: Political Psychology. (4) (Same as History M236A and Political Science M261A.) Seminar, three hours. Introduction to political psychology: psychobiography, personality and politics, mass attitudes, group conflict, political communication, and elite decision making.

M228B. Seminar: Political Psychology. (4) (Same as Political Science M261D.) Discussion, three hours. Requisite: course 220A or Political Science M261A. Examination of political behavior, political socialization, racial conflict, mass political movements, and public opinion. S/U or letter grading.

M228C. Critical Problems in Political Psychology. (4) (Same as Political Science M261E.) Discussion, three hours. S/U or letter grading.

229. Social Cognition. (4) Lecture, one hour; discussion, two hours. Social cognition is concerned with how people organize and interpret social information in their environment. Seminar provides broad background in the field and also gives depth and focus on particular research topics in the field. Weekly papers, as well as a lengthy final paper, required.

231. Psychology of Gender. (4) Seminar, three hours. Preparation: one prior course on gender/women's studies. Critical evaluation of current research and theory concerning psychology of gender, drawing on work from various areas of psychology to understand sources of gender differentiation and its consequences for human behavior and social interaction.

232. Human Sexuality. (4) Lecture, three hours. Designed for graduate students. Intended to teach students how to carry out research on human sexual behavior. Contents include theory construction, scale development, physiological and endocrinological implications, radioimmunoassay (measuring hormones in blood sample), ethical issues, methodological and statistical considerations, measurement of sexual arousal, fantasy, and sexual dysfunction therapy. Discussion-oriented, with emphasis on operationalizing predictions concerning human sexual functioning.

233. Seminar: Environmental Psychology. (4) Requisites: courses 235, 250A, 250B. Critical review of work in environmental psychology designed to identify basic dimensions for analysis of man/environment relationships. Use of human emotional responses to environments as intervening variables linking specific stimulus qualities to a variety of approach-avoidance behaviors. Individual differences and drug-induced states as these relate to emotional response dimensions used to explain within-individual differences in response to same environment over time or between-individual differences to same situation. Review of literature relating information rate from environments to arousal and preferences for those environments.

234. Social Psychological Aspects of Competitive Youth Sport. (4) Review of research concerning social psychological aspects of competitive sport for children. Sport is presented as a major achievement domain for young participants. Topics include sources and consequences of competitive stress, significant adult influences and interactions, predictors of performance, determinants of participation and dropping out, and socialization through sport.

235. Personality. (4) Survey of cognitive, analytic, and learning theory approaches to study of personality. Emphasis on intensive exploration of selected concepts and related research.

M236. Interdisciplinary Relationship Science. (4) (Formerly numbered 236.) (Same as Anthropology M295S, Education M297, and Sociology M270.) Lecture, three hours. Limited to graduate students. Diverse approaches to relationship science in fields of anthropology, education, psychology, and sociology. Focus on theme of understanding biological, behavioral, and cultural aspects of relationships through diverse theoretical and methodological approaches. Use of broad definition of interpersonal relationships, including relationships such as parent-child, teacher-student, sibling, peer, kin, romantic relationships, marriages, and friendships. S/U or letter grading.

M237A-M237B-M237C. Relationship Science Forums. (2-2-2). (Formerly numbered 237A-237B-237C.) (Same as Anthropology M295A-M295B-M295C, Education M298A-M298B-M298C, and Sociology M269A-M269B-M269C.) Seminar, 90 minutes. Limited to graduate students. Current research and theory about personal relationships presented by members of seminar, faculty members, and guest speakers from diverse fields, including anthropology, education, psychology, and sociology. May be repeated for credit. S/U grading.

M238. Survey Research Techniques in Psychocultural Studies. (4) (Same as Psychiatry M238.) Seminar, three hours. Designed for graduate students. Techniques for conceptualizing, conducting, and analyzing survey data; instruction in qualitative strategies for enhancing survey research on psychocultural problems.

M239. Personality, Motivation, and Attribution. (4) (Same as Education M215.) Discussion, three hours. Current research and theory relating personality variables (e.g., attributional styles, self-esteem) to motivational concerns such as persistence and intensity of behavior. Perceived causes of outcomes in achievement and affiliative domains. S/U or letter grading.

240A. Language and Cognitive Development. (4) Lecture, three hours. Preparation: one undergraduate developmental psychology course in cognitive or language development. Designed for graduate students. Consideration of major topics and concepts, key theories, latest methods, and research findings in development of language and cognition. S/U or letter grading.

240B. Social and Emotional Development. (4) Lecture, three hours. Preparation: one undergraduate developmental psychology course in social development or related topic. Designed for graduate students. Consideration of major topics and concepts, key theories, latest methods, and research findings in social and emotional development. S/U or letter grading.

240C. Developmental Psychobiology. (4) Lecture, three hours. Limited to graduate students. Introduction to emerging field of developmental psychobiology, including cognitive and affective neuroscience. Consideration of major topics and concepts, key theories, latest methods, and research findings. S/U or letter grading.

241. Current Developments in Developmental Psychology. (1) Discussion, 90 minutes. Designed for graduate developmental psychology students. Presentation of papers on current advances in developmental psychology and closely related areas by experts in the field. Emphasis on approaches to a problem, making it suitable to interweave presentations by graduate students. S/U grading.

242A-M242G. Seminars: Developmental Psychology. (4 each) Each course may be taken independently and may be repeated for credit:

242A. Perceptual Development. (4) Seminar, three hours. Requisites: courses 240A, 240B. May be taken independently and may be repeated for credit. S/U or letter grading.

242B. Cognitive Development. (4) Seminar, three hours. Requisites: courses 240A, 240B. May be taken independently and may be repeated for credit. S/U or letter grading.

242C. Socialization. (4) Seminar, three hours. Requisites: courses 240A, 240B. May be taken independently and may be repeated for credit. S/U or letter grading.

M242D. Social Development and Education. (4) (Same as Education M217A.) Seminar, four hours. Biological and familial, school, and other influences on children; development in context of current research and theoretical models; consideration of theoretical and methodological research on family, peer group, and school; application of developmental theory and research to educational practice. S/U or letter grading.

242F. Development of Language and Communication. (4) Seminar, three hours. Requisites: courses 240A, 240B. May be taken independently and may be repeated for credit. S/U or letter grading.

M242G. Adolescent Development. (4) (Same as Education M217F.) Seminar, four hours. Designed for graduate students. Review of recent research on physical, cognitive, social, and psychological development during second decade of life. Topics include pubertal development, changes in parent/adolescent relationships, role of peers, identity development, high-risk behaviors, stress and coping, and school adjustment. Letter grading.

243A-243B. Seminars: Practical and Societal Issues in Developmental Psychology. (4-4) Seminar, three hours. Requisites: courses 240A, 240B. Socialization processes in human development and implication for social/political, educational, research issues, values, and societal change. In Progress (243A) and S/U or letter (243B) grading.

244. Critical Problems in Developmental Psychology. (4) Lecture, three hours. Requisites: courses 240A, 240B. Current problems; content varies depending on interest of class and instructor. May be repeated for credit with consent of instructor.

M245. Personality Development and Education. (4) (Same as Education M217C.) Lecture, four hours. Review of research and theory of critical content areas in personality development that bear on school performance: achievement motivation, self-concept, aggression, sex differences, empathy, and other social behaviors; review of status of emotional behavior in personality theory and development. S/U or letter grading.

M246. Psychological Aspects of Mental Retardation. (4) (Same as Psychiatry M246.) Lecture, 90 minutes. Discussion of psychological aspects of mental retardation, including classification, description, etiology, theory, prevention, treatment, assessment, modern and future developments, and input from other disciplines (ethics, law, religion, welfare systems). S/U or letter grading.

M247. Culture, Brain, and Development. (4) (Formerly numbered 247.) (Same as Anthropology M293S, Applied Linguistics M233, and Education M286.) Seminar, three hours. Designed for graduate students. Integration of knowledge across different disciplines to understand interrelations of culture, brain, and development, where development includes both human ontogeny and human phylogeny. S/U or letter grading.

M248. Culture, Brain, and Development Forum. (1) (Same as Anthropology M293, Applied Linguistics M232, Education M285, and Neuroscience M293.) Seminar, 90 minutes every other week. Interdisciplinary seminar series to provide students with exposure to current research in understanding complex relationship between culture, brain, and development. S/U grading.

249. Evaluation Research. (4) Requisites: courses 250A, 250B. Introduction to evaluation research in psychology, with emphasis on clinical, community, and social psychology applications. Survey includes policy and strategy issues, design of evaluative studies, data analysis, and utilization of findings.

250A. Advanced Psychological Statistics. (4) Review of fundamental concepts. Basic statistical techniques as applied to design and interpretation of experimental and observational research.

250B. Advanced Psychological Statistics. (4) Advanced experimental design and planning of investigations.

250C. Advanced Psychological Statistics. (4) Lecture, three hours; discussion, two hours. Requisite: course 250A. Limited to graduate students. Review of traditional topics in correlation and regression analyses, including model comparison strategies, evaluation of model assumptions, testing mediation and moderation hypotheses, working with categorical variables, general linear model, and logistic regression. Letter grading.

251A-251B-251C. Research Methods. (4-4-4) Tutorial, to be arranged. Designed for graduate psychology students. Students design and conduct original research projects under supervision of instructor in charge. It is anticipated that many students will complete their project in two terms (normally three terms allowed). S/U (251A, 251B) and S/U or letter (251C) grading.

252A. Multivariate Analysis. (4) Lecture, three hours. Requisites: courses 250A, 250B. Introduction to analysis of data having multiple dependent variables. Topics include continuous multivariate distributions, multiple regression, multivariate analysis of variance, discriminant analysis, canonical correlation, principal component analysis. Applications from clinical, cognitive, physiological, and social psychology. Computer methods.

252B. Discrete Multivariate Analysis. (4) Lecture, three hours. Requisites: courses 250A, 250B. Introduction to analysis of frequency table data. Topics include categorical univariate and multivariate distributions, independence and conditional independence, log-linear models, multivariate categorical designs, and ordered categorical variables. Applications from various areas of psychology.

M253. Factor Analysis. (4) (Formerly numbered 253.) (Same as Education M231B.) Lecture, four hours. Requisites: Education 211B, 231A. Exploratory factor analysis, rotations, confirmatory factor analysis, multiple-group analysis. S/U or letter grading.

254A. Computing Methods for Psychology. (4) Lecture, three hours. Requisites: courses 250A, 250B. Use of MATLAB, but only basic programming knowledge assumed; no prior knowledge of MATLAB required. Designed to teach basic computer methods relevant to work in experimental psychology and cognitive science. Topics include simulation/modeling, statistical data analysis, and stimulus presentation. S/U or letter grading.

255A. Quantitative Aspects of Assessment. (4) Lecture, four hours. Requisites: courses 250A, 250B. Introduction to issues concerning empirical measurement of abstract constructs using both classical and modern empirical techniques. Hands-on approach allows students to develop practical experience. In addition to discussion of issues concerning reliability and validity, topics include exposure to analytic approaches, including item response theory, multiple regression, principal components analysis, exploratory factor analysis, confirmatory factor analysis, path analysis, and structural equation modeling. S/U or letter grading.

255B. Item Response Theory. (4) Lecture, three hours. Requisites: courses 250A, 250B. Introduction to item response theory (IRT) measurement models and their application to educational and psychological data. Coverage of major IRT models, including models for dichotomous and polytomous formats. S/U or letter grading.

256. Advanced Regression Analysis. (4) Seminar, three hours. Requisites: courses 250A, 250B. Advanced treatment of traditional topics—model comparison strategies, evaluation of model assumptions, outliers, mediation, moderation, categorical variable, polynomials, transformations, logistic regression. S/U or letter grading.

M257. Multivariate Analysis with Latent Variables. (4) (Same as Political Science M208D and Statistics M242.) Lecture, three hours. Introduction to models and methods for analysis of data hypothesized to be generated by unmeasured latent variables, including latent variable analogues of traditional methods in multivariate analysis. Causal modeling: theory testing via analysis of moment structures. Measurement models such as confirmatory, higher-order, and structured-means factory analytic models. Structural equation models, including path and simultaneous equation models. Parameter estimation, hypothesis testing, and other statistical issues. Computer implementation. Applications. S/U or letter grading.

258. Special Problems in Psychological Statistics. (4) Lecture, three hours. Requisites: courses 250A, 250B. Special problems in psychological statistics and data analysis.

259. Quantitative Methods in Cognitive Psychology. (4) Requisites: courses 250A, 250B. Number of nonstatistical mathematical methods and techniques commonly used in cognitive psychology. Topics include Markov chains, other stochastic processes, queueing theory, information theory, frequency analysis, etc.

260A-260B-260C. Proseminars: Cognitive Psychology. (1-1-1) Presentation of research topics by students, faculty, and visiting scholars. May be repeated for credit. S/U grading.

261. Perception. (4) Lecture, three hours. Concepts, theories, and research in study of perception. Consider the questions: Why do things look, sound, smell, taste, or feel as they do? What is the nature of perceptual systems? How do these systems process information?

262. Human Learning and Memory. (4) Lecture, three hours. Contemporary theory and research in human verbal learning and memory; verbal and non-verbal learning and memory processes, structure and organization of short- and long-term memory. S/U or letter grading.

263. Psycholinguistics. (4) Lecture, three hours. Contemporary theory and research in psycholinguistics: coding and decoding, psycholinguistic parameters of language learning, speech recognition and perception. S/U or letter grading.

264. Thinking. (4) (Formerly numbered 265.) Lecture, three hours. Contemporary theory and research in thinking, problem solving, inference, semantic memory, internal representation of knowledge, imagery, concepts. S/U or letter grading.

265. Computational Methods for Neuroimaging. (4) (Not the same as course 265 prior to Winter Quarter 2009.) Lecture, three hours. Requisites: courses 250A, 250B. Theory and practice of processing and analysis of functional MRI data. Topics include image registration, preprocessing and quality control, statistical modeling and inference, multivariate analysis, and machine learning methods. Letter grading.

266. Cognitive Science. (4) Lecture, three hours. Major issues in cognitive science. Representation of cognitive structures and higher-level processes. Specific areas include perception, learning and memory, problem solving, and reasoning. Relationships to artificial intelligence.

M267. Seminar: Neuroeconomics. (4) (Same as Management M298E.) Seminar, three hours. Limited to graduate students. Analysis and discussion of research on cognitive and neural bases of decision making. S/U or letter grading.

268A-268E. Seminars: Human Information Processing. (4 each) Seminar, three hours. Topics vary with interests of instructor. Each course may be taken independently and may be repeated for credit. **268A.**

Perception; **268B.** Human Learning and Memory; **268C.** Judgment and Decision Processes; **268D.** Language and Cognition; **268E.** Human Performance.

268F. Human-Computer Interaction. (4) Lecture, three hours. Limited to graduate students. Concepts, theories, and pragmatics of human-computer interaction. Topics include optimizing Web and product interfaces to enhance quality of user experience, with focus on applying principles of cognition, perception, learning, and memory to create human-computer interactions that are consonant with user needs and capabilities. Course projects include creating and user testing actual Web-based application. S/U or letter grading.

269. Seminar: Cognitive Psychology. (4) Seminar, three hours. Discussion of problems in cognitive psychology that encompass more than a single subfield of the area. May be repeated for credit.

270A-270B-270C. Foundations of Clinical Psychology. (4-4-4) Corequisites: courses 271A, 271B, 271C. Designed for graduate clinical psychology students. **270A.** Analysis of phenomenological, theoretical, and research issues regarding etiology and mediating mechanisms in neurotic, affective, schizophrenic spectrum, and other personality disturbances. **270B.** Principles and methods of psychological assessment and evaluation. **270C.** Principles and methods of psychological intervention in individuals, families, and community settings.

271A-271B-271C. Clinical Psychological Methods. (2-2-2) Corequisites: courses 270A, 270B, 270C. Procedures in clinical psychology as applied in clinical and community settings. Supervised exposure to psychological attributes of psychopathology and procedures for psychological assessment, intervention, and research with clinical populations. Experience closely coordinated with content in courses 270A, 270B, 270C. S/U grading.

271D. Clinical Research Laboratory. (2) Discussion, one hour; laboratory, one hour. Corequisites: courses 270A or 270B or 270C, and 271A or 271B or 271C. Designed for graduate clinical psychology students. Acquaints students with faculty research interests and involves them in their course 251 research at an early stage to insure completion. S/U grading.

271E-271F. Clinical Research Laboratories. (2-2) Requisite: course 271D. Designed for graduate clinical psychology students. Required of first-year clinical psychology students. S/U grading. **271E.** Brief overview of research design issued in clinical psychology and practical issues in students' own research activities. **271F.** Discussions of students' particular research activities and issues, plus laboratories in computer analysis of statistical data.

272A-272G. Advanced Clinical Psychological Methods. (4 each) Each course may be taken independently for credit:

272A. Behavior Modification with Children. (4) Seminar, three hours. Requisites: courses 271A, 271B, 271C. Course in series of clinical intervention and assessment offerings for second- and third-year clinical students that covers behavior modification research and practice in clinic, school, institution, and home settings. May be taken independently for credit.

272C. Clinical Interventions for Psychological Problems of Children. (4) Seminar, three hours. Requisite or corequisite: course 401 or 451. May be taken independently for credit.

272D. Family Therapy and Family Dynamics. (4) Seminar, three hours. Requisite or corequisite: course 401 or 451. May be taken independently for credit.

272E. Special Problems. (4) Seminar, three hours. Requisite or corequisite: course 401 or 451. May be taken independently for credit.

272F. Behavior Modification with Adults. (4) Seminar, three hours. Requisite or corequisite: course 401 or 451. Designed for second-year graduate clinical psychology students. Current cognitive behavior modification principles and techniques. Major conceptual issues; specific techniques demonstrated and practiced by students to cover a range of adult problems such

as depression, stress and anxiety, anger management, assertion problems. May be taken independently for credit.

272G. Marital Therapies. (4) Lecture, two hours; discussion, one hour; laboratory, one hour. Requisites: courses 270A, 270B, 270C, 271A, 271B, 271C. Examination of assessment and treatment approaches for relationship problems in couples. Presentation, discussion, and illustration of procedures derived from social-learning, psychodynamic, and systems theories, with relevant research findings. May be taken independently for credit.

273A-273B-273C. Professional and Ethical Issues in Clinical Psychology. (2-2-2) Lecture, one hour; discussion, one hour. Designed for graduate clinical psychology students. Year-long course sequence covering variety of topics necessary for clinical psychologists in their clinical work, including legal and ethical issues, child abuse, suicide assessment, issues in empirically validated treatments, psychiatric consultation and psychoactive medications, working with diverse client populations, etc. S/U or letter grading.

M274. Health Status and Health Behaviors of Racial and Ethnic Minority Populations. (4) (Same as Health Services M274.) Lecture, two hours; discussion, one hour. Limited to graduate students. Overview of physical and mental health behaviors and status of major racial/ethnic groups in U.S. Where appropriate, discussion of international issues as well. S/U or letter grading.

275. Conceptual and Methodological Issues in Community Intervention. (4) Lecture, three hours. Limited to graduate students. Conceptualization of social problems from macrosocial perspective; discussion of multidimensional explanatory models for select illustrative problems; discussion and critical evaluation of both individual-focused and community-focused interventions with high-risk and impacted populations. S/U or letter grading.

276. Clinical Approaches to Children with Learning and Related Behavior Problems. (4) Lecture, three hours; discussion, one hour. Designed for Ph.D. students. Theoretical and research issues and problems related to purposes of and practices involved in assessment and correction approaches for children with learning and behavior problems. Practicum experiences to illustrate course content and provide opportunities to improve research and clinical competence. S/U or letter grading.

277. Advanced Clinical Assessment. (4) Lecture, four hours; laboratory, three hours. Designed for graduate clinical psychology students. Projective techniques, clinical interpretation, case studies, psychological test battery, psychopathology, and application of assessment to problems in psychotherapy. S/U or letter grading.

M278. Functional Neuroimaging: Techniques and Applications. (3) (Same as Biomedical Engineering M284, Biomedical Physics M285, Neuroscience M285, and Psychiatry M285.) Lecture, three hours. In-depth examination of activation imaging, including MRI and electrophysiological methods, data acquisition and analysis, experimental design, and results obtained thus far in human systems. Strong focus on understanding technologies, how to design activation imaging paradigms, and how to interpret results. Laboratory visits and design and implementation of functional MRI experiment. S/U or letter grading.

279. Seminar: Research in Psychopathology. (4) Seminar, four hours. S/U or letter grading.

M280. Affective Disorders. (2 or 4) (Same as Psychiatry M234.) Seminar, two hours. General topics related to primary affective disorders (depression, manic depressive illness), including diagnosis, pharmacology, epidemiology, psychology, phenomenology, biology, and treatment. Students enrolled for 4 units are assigned a more intensive reading list and required to make a presentation or prepare a research paper. S/U or letter grading.

283. Psychopathology. (4) Lecture, three hours. Survey of dominant psychological attributes of particular forms of psychopathology, including analysis of

status of various theories concerned with etiology and mediating mechanisms of personality, neurotic, schizophrenic spectrum, and affective disturbances. S/U or letter grading.

284. Seminar: Clinical Psychology and Communication. (4) Seminar, four hours. S/U or letter grading.

M285. Cognitive Behavior Therapy with Children: Treatment and Systems of Care. (2 or 4) (Same as Psychiatry M277.) Seminar, 90 minutes. Designed for graduate students. Cognitive/behavioral approaches to prevention and treatment of mental health problems in children. Examination of service delivery systems for treating troubled youth and discussion of issues with respect to current systems of care. Major problems include conduct disorders, attention deficit disorder, depression, anxiety, and learning disabilities. Letter grading.

286. Issues and Concepts of Clinical Psychology. (4) Discussion, three hours. Open to graduate students in majors other than clinical psychology. Survey of major issues and alternatives in current practice. Emphasis on assessment and intervention, with consideration of historical, theoretical, and research bases for current trends. S/U or letter grading.

287. Critical Problems in Clinical Research Methodology. (4) Lecture, three hours. Prerequisites: courses 250A, 250B. Special problems of measurement and design in clinical research. S/U or letter grading.

289A-289B-289C. Current Issues in Clinical Psychology. (1-1-1) Discussion, two hours. Designed for first-year graduate clinical psychology students. Presentation of research and applied topics relevant to clinical psychology. In Progress (289A, 289B) and S/U (289C) grading.

290. History of Psychology. (4) Lecture, three hours. Philosophical and historical context of contemporary psychology. Major trends from 19th century to contemporary issues. S/U or letter grading.

291. Principles of Behavioral Pharmacology. (4) Lecture, four hours. Intensive analysis of drug, brain, and behavior relationships. Discussion of nature and source of drugs, general aspects of pharmacology, neurotransmitters and basic neuropharmacology, principles of behavioral pharmacology, categories of psychopharmacological agents, and pharmacological approaches to study of drug addiction, schizophrenia, and other behavioral processes, both normal and pathological. S/U or letter grading.

292. Biobehavioral Mechanisms of Stress and Disease. (4) Lecture, three hours. Designed for graduate psychology students. Behavior/physiology interactions of some major bodily systems: nervous, cardiovascular, gastrointestinal, and endocrine systems. Usual and altered states of these systems (e.g., stress) as these can promote permanent tissue injuries, disease, or improved bodily function, health enhancement. S/U or letter grading.

292B. Psychosocial Contributors to Ethnic Disparities in Health. (4) Seminar, three hours. Limited to graduate students. Role of social class, gender, and other psychosocial factors in accounting for disparities in physical and psychological health in racial/ethnic groups. Attention to variety of specific disorders, with focus on explanatory models and approaches to intervention. S/U or letter grading.

293. Behavioral and Psychophysiological Problems of Alcoholism. (4) Lecture, four hours. Behavioral and psychophysiological characteristics of alcoholism, along with theories concerning their etiology and treatment. Experimental approaches. S/U or letter grading.

M294. Seminar: Neural and Behavioral Endocrinology. (2) (Same as Neurobiology M255 and Physiological Science M255.) Seminar, one hour; discussion, one hour. Topics include hormonal biochemistry and pharmacology. Hypothalamic/hypophyseal interactions, both hormonal and neural. Structure and function of hypothalamus. Hormonal control of reproductive and other behaviors. Sexual differentiation of brain and behavior. Stress: hormonal, behavioral, and neural aspects. Aging of reproductive behaviors and function. Letter grading.

296A. Research Topics in Psychology. (1) (Formerly numbered 296.) Research group meeting, one hour. Limited to graduate students. Discussion of current literature, new ideas, methodological issues, and preliminary findings. Research presentations and opportunities for feedback on current and proposed research activity to encourage, support, and facilitate student research expertise. Assigned readings included. S/U grading.

C296B. Research Group Seminars: Practicum. (1) Seminar, one hour. Designed for graduate students who are part of research group that meets with undergraduate students. Discussion of research methods and current literature in field or of research of faculty members or students. Concurrently scheduled with course C194D. S/U grading.

297. Issues in Social Development of Minority Child. (4) Seminar, three hours. Designed for graduate students. Critical evaluation and integration of existing research on social psychological development of minority child. Emphasis on socialization of cognitive and personality style, with goal of empirically clarifying issues raised in this area of developmental study. S/U or letter grading.

298. Special Problems in Psychology. (4) Discussion, three hours. Content depends on interests of particular instructor. May be repeated for credit. S/U or letter grading.

299. Developmental Methodology. (4) Lecture, three hours. Coverage of both theory and methods in measuring age-related changes in behavior. Experimental designs and data-analytic solutions to problems in measurement of change. Some experience in analysis of actual data sets. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

401. Fieldwork in Clinical Psychology. (1 to 12) Fieldwork, to be arranged. Prerequisites: courses 271A, 271B, 271C. Students on practicum assignments are required to register for this course each term (except by consent of clinical program committee). S/U or letter grading.

402. Clinical Research Practicum. (2) Fieldwork, two hours. Faculty and graduate students who share interests discuss current literature, new ideas, methodological issues, and preliminary findings. Meetings include research presentations and opportunities for feedback on current and proposed research activity to encourage, support, and facilitate student research expertise. Assigned reading included. S/U grading.

403. Special Topics Study Course. (1 to 4) Discussion, one to four hours. Under faculty supervision, group of students meets each week for quarter in self-led study group to pursue specific topic of their choice that is not covered in other department courses. S/U grading.

410A-410B-410C. Clinical Teaching and Supervision. (4-4-4) Clinic, four hours. Preparation: completion of Ph.D. comprehensive examinations, advancement to candidacy or preparation for dissertation research actively under way. Study and practice of knowledge, concepts, and theories on teaching and supervision of applied clinical psychology. S/U or letter grading.

410D-410E-410F. Clinical Assessment Supervision. (4-4-4) Clinic, two hours; other, one hour. Designed for third-year graduate clinical psychology students. Study and practice of knowledge, concepts, and theories on teaching and supervision of psychological assessment. Letter grading.

420A-420B. Health Psychology Practicum. (2-2) Fieldwork, to be arranged. Designed for graduate students. Determination of what areas of health, illness, treatment, and delivery of treatment can be elucidated by understanding of psychological concepts and research; psychological perspective on these problems; how psychological perspective might be en-

larged and extended in medical area. Through practical field placement, students apply knowledge acquired in class to research observation and/or clinical work in field. S/U or letter grading.

421. Research in Social Psychology. (2) Discussion, two hours; reading and group work, four to six hours. Forum for faculty and graduate students pursuing research on a common topic to share research ideas, make research presentations, and obtain feedback on study designs, procedures, and results to foster collaborative investigations in common research areas. S/U grading.

423. Social Survey Research Practicum. (4) Practicum, two hours; additional hours to be arranged. Methods of survey sampling, conduct and management of computer-assisted telephone interview surveys. S/U or letter grading.

425. Health Psychology Lecture Series. (2) Lecture, one hour. Clinicians and researchers in health psychology from Los Angeles area present their research, programs, and/or clinical work as part of training program in health psychology. May be repeated for credit. S/U grading.

451. Internship in Clinical Psychology. (6 to 12) Fieldwork, to be arranged. Preparation: successful completion of departmental qualifying examinations. Prerequisite: course 401. May be repeated for credit. S/U grading.

454. Internship in Industrial Psychology. (2 to 4) Fieldwork, to be arranged. S/U or letter grading.

495. Presentation of Psychological Materials. (4) Seminar, to be arranged. Supervised practicum in undergraduate teaching. Students serve as discussion section leaders in selected undergraduate courses. S/U grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. Directed Individual Research and Study in Psychology. (2 to 12) Tutorial, to be arranged. One 596 course is required during second year of graduate study, and one 596 or 599 course is required during each succeeding year of graduate study. (Terminal M.A. candidates are exempt from this requirement.) S/U grading.

597. Individual Studies. (2 to 12) Tutorial, to be arranged. Designed primarily as preparation for Ph.D. qualifying examinations. May be required by some area committees as requisite for taking examinations. S/U grading.

599. Research for Ph.D. Dissertation. (2 to 12) Tutorial, to be arranged. Preparation: successful completion of qualifying examinations. One 599 course is required during each year following completion of qualifying examinations. S/U grading.

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 Fernando M. Torres-Gil, Ph.D. (*Public Policy, Social Welfare*)
 Rick Tuttle, Ph.D. (*Public Policy*)

Scope and Objectives

The Public Affairs minor teaches undergraduate students the skills of policy analysis and exposes them to many of the local, state, national, and international issues facing today's policymakers and opinion leaders. Courses explore the public (governmental) and nonprofit sectors and provide a theoretical, conceptual, and practical foundation for students. Particular attention is given to the vexing issues facing urban areas and urban planners, social welfare and social workers, and public policies that affect individuals and groups of people in their public and private lives.

Undergraduate Study

Public Affairs Minor

To enter the Public Affairs minor, students must have an overall grade-point average of 2.0 or better and complete Public Policy 10A with a grade of B or better. For further information, contact the program director/counselor at (310) 206-8966.

Required Core Courses (8 units): Public Policy 10A and one course from 10B, C101, 102, M116, C119, 125, Honors Collegium 82, Social Welfare 191, Urban Planning 120, 121 or, by petition only, another applied policy course. Highly recommended: one statistics and one microeconomics course.

Required Upper Division Courses (20 units): (1) Three courses from one of the following clusters: (a) *gender and multiculturalism cluster*—Public Policy M120, Social Welfare 101, M104C, Urban Planning 141, M175; (b) *labor and work cluster*—Public Policy 141, C142, C144, 145, 148; (c) *policy studies cluster*—three upper division public policy lecture/seminar courses (191A may be repeated for credit with topic change); (d) *social welfare cluster*—three upper division social welfare lecture courses (fieldwork and internship courses such as Social Welfare 130A and 130B may not be applied); (e) *urban policy and planning cluster*—three upper division urban planning lecture courses (129 may be repeated for credit with topic change); or (f) by petition, a cluster of upper division policy courses proposed by the student; (2) one elective course offered by the School of Public Affairs not used to satisfy the core or cluster requirement; (3) capstone project to be completed during the senior year that may be satisfied by one of the following: (a) Public Policy 187, (b) Political Science M191DC or M194DC, (c) Civic Engagement 105SL, or (d) by petition another upper division applied policy course that requires a substantial term paper.

Fieldwork and internship courses, such as Social Welfare 130A, 130B, and Urban Planning

CM165, may not be applied toward the minor. No more than three of the cluster and elective courses may be from a single department, and no more than two may be from outside the school.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

PUBLIC HEALTH

*Interdisciplinary Minor
 School of Public Health*

UCLA
 A1-269 Center for the Health Sciences
 Box 951772
 Los Angeles, CA 90095-1772
 (310) 825-5524
 e-mail: info@ph.ucla.edu
http://www.ph.ucla.edu/stud_publichealth.html

Hilary A. Godwin, Ph.D., *Chair*

Faculty Administrative Committee

David D. Clark, M.S., *ex officio* (*Public Health*)
 Roger Detels, M.D., M.S. (*Epidemiology*)
 Curtis D. Eckhart, Ph.D. (*Environmental Health Sciences*)
 Hilary A. Godwin, Ph.D. (*Environmental Health Sciences*)
 Moira Inkelas, Ph.D. (*Health Services*)
 Christina Ramirez Kitchen, Ph.D. (*Biostatistics*)
 Ondine S. von Ehrenstein, Ph.D. (*Community Health Sciences*)

Scope and Objectives

The Public Health minor is designed for students who wish to learn more about core public health functions, including the assessment and monitoring of the health of communities and populations at risk to identify health problems and priorities, the formulation of public policies designed to solve identified local and national health problems and priorities, the assurance that all populations have access to appropriate and cost-effective care, and the evaluation of the effectiveness of that care.

Undergraduate Study

Public Health Minor

To enter the Public Health minor, students must be in good academic standing with an overall grade-point average of 2.0 or better, have completed 90 or more units, and file a petition at the School of Public Health Student Affairs Office, A1-269 Center for the Health Sciences. Enrollment is competitive and based on grade-point average and an application essay.

Required Upper Division Courses (28 units): Seven courses, including Biostatistics 100A, Community Health Sciences 100, Environmental Health Sciences 100, Epidemiology 100, Health Services 100, Public Health 150 (must be taken during the first term of enrollment in the minor), and one elective course to be se-

lected from Biostatistics 100B, Community Health Sciences 90, 91, 130, 132, M140, 180, 181, Health Services M110, C121, Public Health 53, M106, or M151. Transfer credit for any of the above is subject to school approval.

Each minor course must be taken for a letter grade, and students must have a minimum grade of C (2.0) in each and an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

PUBLIC HEALTH SCHOOLWIDE PROGRAMS

School of Public Health

UCLA
 A1-269 Center for the Health Sciences
 Box 951772
 Los Angeles, CA 90095-1772

(310) 825-5524
 e-mail: info@ph.ucla.edu
<http://www.ph.ucla.edu>

Scope and Objectives

The profession of public health is responsible for the protection, preservation, and promotion of the health of communities and populations. Although the health problems of today differ from those of the past and of the future, the professionals who make up the field need to be trained to respond to broad community problems utilizing the basic ideas of prevention of disease and promotion of well-being. This goal can be achieved only with an understanding of the health status of the population through data gathering and analysis, as well as knowledge of the complex relationships between disease process in the social and biological environment of the community.

The field of public health today needs practitioners from many disciplines. Candidates for graduate study may come from a wide variety of academic backgrounds, training, or experience, including both the natural and social sciences.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The School of Public Health offers two schoolwide degrees, Master of Public Health (M.P.H.) and Doctor of Public Health (Dr.P.H.), and M.S. and Ph.D. degrees in Biostatistics, Environmental Health Sciences, Epidemiology, Health Services, and Public Health (offered through the Department of Community Health Sci-

ences). An undergraduate minor in Public Health is also offered.

Two interdepartmental degree programs—the Doctor of Environmental Science and Engineering (D.Env), housed in the Department of Environmental Health Sciences, and the Ph.D. in Molecular Toxicology—are also available.

The M.S. program in Preventive Medicine and Public Health is not admitting new students at this time. For information on the Preventive Medicine Residency program, see <http://www.ph.ucla.edu/pmr/>.

Seven concurrent degree programs (Public Health M.P.H./African Studies M.A., Public Health M.P.H./Asian American Studies M.A., Public Health M.P.H./Islamic Studies M.A., Public Health M.P.H./Law J.D., Public Health M.P.H./Management M.B.A., Public Health M.P.H./Public Policy M.P.P., Public Health M.P.H./Social Welfare M.S.W.) and two articulated degree programs (Public Health M.P.H./Latin American Studies M.A., Public Health M.P.H./Medicine M.D.) are also offered.

Public Health

Lower Division Courses

10. Introduction to Public Health. (4) Seminar, three hours. Designed for lower division students. Introduction to range of topics, issues, and frameworks to help students understand current public health issues and public health systems, policies, and practices. P/NP or letter grading.

53. Introduction to Health of Underserved and Linguistic Minority Communities. (4) Lecture, three hours. Population projections, population characteristics, birth rates and outcomes, causes of death and death rates, patterns of reportable diseases, services utilization, patterns of immigration, health insurance, provider training, risk behaviors, and chronic diseases in Latino and other underrepresented minority communities in Los Angeles County. Letter grading.

Upper Division Courses

M106. Health in Chicano/Latino Population. (4) (Same as Chicana and Chicano Studies M106.) Lecture, four hours; discussion, one hour. Designed for juniors/seniors. Examination of Chicano/Latino health status through life expectancy, causes of death, reportable diseases, services utilization, provider supply, and risk behaviors within demographic/immigration changes. Binational review of health effects in U.S. and Mexico. Letter grading.

150. Contemporary Health Issues. (4) Lecture, four hours. Designed for juniors/seniors. Exploration of nation's health challenges, epidemiologic basis of public's health, organization and financing of health services in the U.S. and elsewhere, and current strategies for advancing people's health. Letter grading.

M151. Healthcare in Transitional Communities. (4) (Same as Sociology M142.) Lecture, three hours; discussion, one hour. Analysis of social, cultural, economic, and political processes affecting organization and accessibility of healthcare in transitional and disadvantaged communities. Fieldwork required. Letter grading.

M160A. Health Outreach and Education for At-Risk Populations. (4) (Same as Medicine M160A.) Lecture, four hours; possible field observations. First in series of courses to explore prevention of disease in at-risk populations, clinical services and referrals for disadvantaged, and effects of low socioeconomic status on academic achievement, career, and family. Lectures by faculty and practitioners, with field visits. P/NP or letter grading.

M160B. Health Outreach and Education for At-Risk Populations. (4) (Same as Medicine M160B.) Lecture, two hours; discussion, two hours. Requisite: course M160A. Second in series of courses to explore prevention of disease in at-risk populations, clinical services and referrals for disadvantaged, and effects of low socioeconomic status on academic achievement, career, and family. Lectures by faculty and practitioners, discussion groups, and field activities including health education. P/NP or letter grading.

180SA. Current Topics in California Health Policy. (4) Lecture, four hours. Corequisite for UCLA students: Civic Engagement 195SA; for non-UCLA students: one internship course. Limited to junior/senior UC Center Sacramento Program students. Development of systematic understanding of policy analysis to help students develop their own advanced policy analysis of current California-related health policy issues, and analysis of key policy challenges facing health and healthcare of California's diverse population. Offered in summer only. Letter grading.

Graduate Course

299. Strategies for Success for Doctoral Students. (2) Seminar, two hours. Interactive seminar, with focus on research process, tips for success in academia, and important tools for leadership designed for all doctoral students in School of Public Health. S/U grading.

PUBLIC POLICY

School of Public Affairs

UCLA
3250 Public Affairs Building
Box 951656
Los Angeles, CA 90095-1656

(310) 825-7667, *Department Office*
(310) 825-0448, *Admissions*
fax faculty: (310) 206-0337
fax administration/admissions: (310) 206-2381
e-mail: mppinfo@publicaffairs.ucla.edu
<http://www.publicaffairs.ucla.edu/public-policy>

Michael A. Stoll, Ph.D., *Chair*

Professors

Joel D. Aberbach, Ph.D.
Helmut K. Anheier, Ph.D.
Albert Carnesale, Ph.D.
Michael R. Darby, Ph.D. (*Warren C. Corder Professor of Money and Financial Markets*)
Franklin D. Gilliam, Ph.D.
Neal Halfon, M.D., M.P.H.
Sanford M. Jacoby, Ph.D. (*Howard Noble Professor of Management*)
Matthew E. Kahn, Ph.D.
Mark A.R. Kleiman, Ph.D.
Susanne Lohmann, Ph.D.
Barbara J. Nelson, Ph.D.
Mark A. Peterson, Ph.D.
Allen J. Scott, Ph.D.
Michael K. Stenstrom, Ph.D.
Michael A. Stoll, Ph.D.
Fernando M. Torres-Gil, Ph.D.
Lynne G. Zucker, Ph.D.

Professors Emeriti

Robert Dallek, Ph.D.
Joel F. Handler, J.D. (*Richard C. Maxwell Professor Emeritus of Law*)
Michael D. Intriligator, Ph.D.
Archie Kleingartner, Ph.D.
Arleen Leibowitz, Ph.D.
Daniel J.B. Mitchell, Ph.D. (*Ho-Su Wu Professor Emeritus of Management*)
Richard N. Rosecrance, Ph.D.
Charles E. Young, Ph.D.

Associate Professors

J.R. DeShazo, M.Sc., Ph.D.
Robert T. Jensen, Ph.D.
Meredith Phillips, Ph.D.
Andrew Sabl, Ph.D.
Amy B. Zegart, Ph.D.

Assistant Professors

Aaron L. Panofsky, Ph.D.
Sarah J. Reber, Ph.D.

Lecturers

C. Mike Dennis, M.P.A., C.P.F.O.
Rick Tuttle, Ph.D.

Visiting Professors

Dean Baim, Ph.D.
Michael S. Dukakis, J.D.
Matthew P. Drennan, Ph.D.

Scope and Objectives

The Department of Public Policy is an interdisciplinary unit composed of faculty members from various disciplines, some of whom hold joint appointments in other UCLA departments. Its goal is to foster an understanding of the theory and practice of public policy in the many fields in which it applies. Examples include education, healthcare, unemployment and training, drug policy and crime, economic development, national security, and the environment. The department offers the Master of Public Policy (M.P.P.) degree and participates in the undergraduate minor in Public Affairs.

The M.P.P. degree program is designed to train professionals in both public- and private-sector policy analysis and implementation and provides coursework in such areas as microeconomics, statistics, political processes, and public and nonprofit management.

Concurrent degree programs allow students to combine study for an M.P.P. with work toward a J.D. in the School of Law, an M.B.A. in the John E. Anderson Graduate School of Management, an M.P.H. in the School of Public Health, or an M.S.W. in the Department of Social Welfare.

The undergraduate minor in Public Affairs familiarizes students with key issues in public policy. Both programs have a heavy applied orientation. For further information on the minor, see Public Affairs earlier in this section of the catalog.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degree

The Department of Public Policy offers the Master of Public Policy (M.P.P.) degree. Four concurrent degree programs (Public Policy M.P.P./Law J.D., Public Policy M.P.P./Management M.B.A., Public Policy M.P.P./Public Health M.P.H., and Public Policy M.P.P./Social Welfare M.S.W.) are also offered.

Public Policy

Lower Division Courses

10A. Introduction to Public Policy. (4) Lecture, three hours; outside study, nine hours. Overview of principal topics of contemporary policy analysis, developing their applications with examples from instructor's own research, visitors, small student projects, or field trips. Letter grading.

10B. California Policy Issues. (4) Lecture, three hours; outside study, nine hours. Enforced requisite: course 10A. Application of policy analysis to California issues. Guest lectures from practitioners and academics along with readings and videos. Student written reports and oral presentations required. Letter grading.

Upper Division Courses

C101. Drug Abuse Control Policy. (4) Lecture, three hours; outside study, nine hours. Introduction to drug abuse as social problem and to drug abuse control as policy issue, with examination of both necessity and difficulty of making and executing wise policies around psychoactive substances. Concurrently scheduled with course C235. Letter grading.

102. Imperfect Rationality. (4) Lecture, three hours; outside study, nine hours. Idea that individuals are capable of acting rationally, in their own interest, is central to economic theory and to custom, law, and common sense thinking. Economics offers thorough account of ways in which such people should deal with choice, risk, and time. Casual observation and experimentation agree that actual behavior deviates in systematic ways from prescriptive model of rationality. Groups of rationally seeking individuals might fail to act as rationally self-seeking groups. Consideration of deviations between rational choices and actual behavior in public policies. Letter grading.

103. Ethics, Morality, and Public Life: Contemporary Controversies. (4) Lecture, four hours; outside study, eight hours. Study of ethical and moral questions that arise in public life. Goal is not to imbue students with a given body of factual knowledge or to develop new quantitative or social science methodologies to analyze such questions, but to enhance their critical thinking skills. Letter grading.

104. Culture and Political Structure of Los Angeles. (4) Lecture, three hours; outside study, nine hours. Exploration of two pieces of the puzzle in modern urban life: the different communities that live here (and in most other major cities) and political structure that binds us all together. Who are the communities living here? How do they organize themselves and develop leaders? How does integration into mainstream take place? What is "mainstream" today? How does political structure help or impede the notion of a united city? Letter grading.

105. Leadership in Public Interest. (4) Lecture, three hours. Examination of prevailing models, theories, and practices of leadership in public settings and application of them through case studies, films, and situational articles. Participation in group projects and discussions designed to improve understanding of role of leadership in mobilizing people groups to do difficult work. Introduction to literature and theory on leadership, examination of leadership and group dynamics, and challenge of leadership in times of stress and change. Letter grading.

112. Controversies in Education Policy. (4) Lecture, three hours; outside study, nine hours. Focus on several controversial topics in contemporary education. Topics vary each year and include multiculturalism, affirmative action, test score gap, bilingual education, and school choice. Introduction to major arguments for and against several important education policies and to encourage students to critically evaluate logic and evidence behind these policies. Letter grading.

C115. Environmental and Resource Economics and Policy. (4) Lecture, three hours. Requisites: Economics 11, 143. Survey of ways economics is used to define, analyze, and resolve problems of environmental management. Overview of analytical questions ad-

ressed by environmental economists that bear on public policies. Concurrently scheduled with course CM250. Letter grading.

M116. Nuclear Weapons: Critical Decisions. (4) (Same as Environment M165, Honors Collegium M119, and Political Science M139B.) Lecture, three hours. Examination of critical decisions regarding nuclear weapons, starting with President Roosevelt's decision to build atomic bomb and ending with current policies on containing nuclear proliferation and on avoiding nuclear catastrophe. Letter grading.

CM117. Crisis Decision Making in U.S. Foreign Policy. (4) (Same as Political Science M121B.) Lecture, three or four hours; discussion, one hour (when scheduled). Recommended requisites: Political Science 120A, 137A, 137B. In-depth look at theory and practice of U.S. foreign policy-making. Assessment of competing theories of international relations and application to specific case studies. Weekly role plays of foreign policymakers and final crisis simulation exercise. Concurrently scheduled with course C272. Letter grading.

M118. U.S. Intelligence Agencies in Theory and Practice. (4) (Formerly numbered 118.) (Same as Political Science M120C.) Lecture, three hours; discussion, one hour. Limited to juniors/seniors. Examination of U.S. intelligence agencies from Cold War to present. Particularly in light of 9/11 and Iraq war, few organizations are more important and less understood. Course separates fact from fiction, comparing how intelligence agencies are portrayed in popular entertainment to how they operate in practice. Fundamentals of intelligence collection (from satellites to spies) and analytic tradecraft; key challenges such as role of ethics in intelligence; performance of U.S. intelligence agencies during Cold War; and intelligence community's ability to adapt to rise of terrorism. Application of general concepts to specific case studies of Cuban missile crisis, 2003 Iraq war, and September 11, 2001, terrorist attacks. Letter grading.

C119. Crime Control Policy. (4) Lecture, three hours; outside study, nine hours. Design, implementation, and evaluation of policies to control crime. Operations of major institutions within criminal justice system. Theories of crime causation and prevention and their relationship to impacts of alternative policies. Concurrently scheduled with course C219. Letter grading.

M120. Race, Inequality, and Public Policy. (4) (Same as Afro-American Studies M120.) Lecture, three hours. Background in economics, sociology, or urban studies preferred but not required. Survey course to examine major debates and current controversies concerning public policy responses to social problems in urban America. Letter grading.

M122. Ethics and Governance. (4) (Same as Human Complex Systems M145 and Political Science M115A.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Study of applied ethics and governance, taking case-based approach, mixing normative and positive perspectives. Is action X morally right or wrong? How do people reason about whether action X is morally right or wrong? How do governance structures influence how people reason about whether action X is morally right or wrong? How can we design governance structures that encourage people to act ethically, contribute to public goods, and lead productive and fulfilled lives? P/NP or letter grading.

CM123. U.S. National Security Policy. (4) (Same as Political Science M125B.) Lecture, three hours; outside study, nine hours. Limited to juniors/seniors. Examination of contemporary U.S. national security challenges and how policymakers develop strategies to address them. Exploration of Cold War legacy, development of American national security strategic doctrine, and U.S. foreign policymaking process from 1945 to present. Examination of broad spectrum of issues confronting today's foreign policy leaders, from threats to vital U.S. interests (WMD proliferation and terrorism), to regional security and economic challenges (Iraq, China), to humanitarian intervention and nation-building (Darfur, Afghanistan). Students draft analytic options memos and deliver oral presentations

on how to handle six current national security mini-cases. Provides overview of current challenges and hones student analytic skills to examine these challenges from strategic policy perspective. Concurrently scheduled with course C274. Letter grading.

C124. Budget Politics, Social Policy, and Entitlement Reform. (4) Lecture, three hours; outside study, nine hours. Examination of politics of public budgeting in the U.S., with emphasis on financing of social safety net. Exploitation of budgetary process as setting both for gaining substantive knowledge about how government really works and for developing political skills required to influence resource allocation decisions. Concurrently scheduled with course C239. Letter grading.

125. Rights and Wrongs of Affirmative Action. (4) Lecture, three hours; discussion, one hour. Exploration of race-based affirmative action from moral, political, and social philosophy standpoint. Topics include defining discrimination, individual and group equity; different meanings of "diversity"; meritocracy and its critics; historical and future-based arguments; sociology of values; possibilities for moral compromise. Letter grading.

M126. Political Ethics. (4) (Formerly numbered CM126.) (Same as Political Science M115B.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Study of major issues in morality, or lack thereof, of political life. Coverage of both readings in moral and political theory and real-world examples such as Watergate, terrorism, civil rights politics, and presidential campaigns. Topics include basic ethical theory, role-relative ethics, Machiavellian amorality, democratic responsibility and representation, ethics of compromise, dirty hands problems, international ethics. Letter grading.

M127. Understanding Public Issue Life Cycle. (4) (Same as Political Science M142D.) Lecture, three or four hours; discussion, one hour (when scheduled). Recommended preparation: Political Science 10, 40, and one course from Economics 1, 2, 5, 11, 100, or 101. Examination of how public issue life cycle is shaped by (1) economic and political incentives of various actors—business, news media, mass public, organized interests, Congress, the president, regulatory agencies, and courts and (2) ideology, cognitive biases, and ethical reasoning. P/NP or letter grading.

141. Employment and Labor Policy: Survey. (4) Lecture, three hours; outside study, nine hours. Requisite: course 10A. Introduction to current public policy issues in employment, labor relations, and labor markets. Historical context for current employment and labor policies in the U.S. Pro and con philosophical analysis of reasons for government regulation. Analysis of current data on labor unions, the workplace, and labor-market trends. Workforce diversity, education and training, social welfare policy, and global issues (immigration, trade, and global economy as it affects the workforce). Future trends and issues on policy horizon. Letter grading.

C142. Labor Markets and Public Policy. (4) Lecture, three hours; outside study, nine hours. Highly recommended preparation: prior microeconomics course. Survey of major topics in economic analysis of labor markets and public policies toward labor market. Topics include labor force trends and measurement, compensation determination, productivity, internal labor markets, human capital, union wage effects, unemployment, and minority and female labor-market experience. Concurrently scheduled with course CM230. Letter grading.

C144. Comparative Industrial Relations. (4) Lecture, three hours; outside study, nine hours. Requisite: course 10A. At national and international levels, historical and contemporary analytical comparison of political, social, and economic contexts influencing human resource systems of selected developed countries. In addition to discussing possible frameworks for analyzing human resource systems, examination of institutions and ideologies of labor, management, and government, and interaction of their power relationships; substance and manner of determination of

"web of rules" governing rights and obligations of the parties; and resolution of conflicts. Concurrently scheduled with course CM231. Letter grading.

145. Labor Policies in the U.S.: Historical Perspective. (4) Lecture, three hours; outside study, nine hours. Requisite: course 10A. Insight into evolution of labor policies in the U.S. from 19th century to the present. Exploration of important policy areas such as child labor, labor standards, protective legislation for women workers, industrial relations, civil rights, occupational safety and health, and international labor standards in (1) historical context (economic, political, and social factors that shaped the debate), (2) motivation and action of major players (business, labor, government), and (3) changing patterns of government involvement in public policy. Letter grading.

146. Democracy, Disobedience, and Dissent. (4) Lecture, three hours; outside study, nine hours. Requisite: Philosophy 6 or Political Science 10. Theories of political and legal obligation and their critics; justified disobedience in response to inequality, injustice, and social exclusion; moral and religious pluralism as argument for both obedience and dissent. Letter grading.

C147. Critical Policy Issues and Problems in Globalizing World. (4) Lecture, three hours; outside study, nine hours. To enable students to (1) think of world in dynamic terms, (2) be able to map, divide, and assemble world in many different ways, and (3) be able to articulate patterns of flux, change, and movement in world space and history. Concurrently scheduled with course C245. Letter grading.

148. Business and Public Policy. (4) Lecture, three hours; outside study, nine hours. Requisite: course 10A. Introduction to key issues arising at interface between business and government policy. Discussion of why government focuses so intensively on regulating economic outcomes, nature of business/government relationship, business political activity, and major government policies. Topics include economic regulation (industrial policy, antitrust, technology policy); social regulation of business (energy, environment, risk, liability, corporate governance); and corporate social responsibility, business ethics, and green business. Discussion of topics in their historical and political context, with comparison between economic regulation in the U.S. and other countries. Letter grading.

M149. California Sustainable Development: Economic Perspective. (4) (Same as Environment M135 and Urban Planning M163.) Lecture, three hours. Examination of specific environmental challenges that California faces. Microeconomic perspective used, with special emphasis on incentives of polluters to reduce their pollution and incentives of local, federal, and state government to address these issues. Focus on measurement and empirical hypothesis testing. P/NP or letter grading.

M186. Equal Rights and Unequal Education. (4) (Same as Education M186 and Political Science M144C.) Lecture, four hours. Exploration of contradictions between American beliefs about equal opportunity and racial equality and inequalities that exist in public education. Three major topic areas in education as vehicles for understanding philosophical and empirical complexities of issues surrounding equality in American education and life. Examination of issues from legal, sociological, political, and philosophical perspectives. Arguments range from Martin Luther King to Ronald Reagan, and legal cases include Plessy versus Ferguson to Brown versus Board of Education, as well as cases still pending in courts. Letter grading.

187. Research Seminar: Public Policy. (4) Seminar, three hours; outside study, nine hours. Requisite: course 10A. Limited to and required of seniors in Public Affairs minor. Production of research project that examines in depth one particular policy issue in its social context, including political pressures involved and problems of implementation. Emphasis on skills of data acquisition and analysis, conceptualization, and written analysis and presentation. Letter grading.

191A. Variable Topics Research Seminars: Public Policy. (4) Seminar, three hours; outside study, nine hours. Examination of particular subfields of policy studies (e.g., international policy, crime policy, policy history) in depth, with specific topics to be identified by instructor. Reading, discussion, and development of culminating project. Must be taken for credit if applied toward Public Affairs minor. May be repeated for credit with topic change. P/NP or letter grading.

191B. Variable Topics Research Seminars: Public Policy. (3) Seminar, three hours. Examination of particular subfields of policy studies (e.g., international policy, crime policy, policy history) in depth, with specific topics to be identified by instructor. Reading, discussion, and development of culminating project. Must be taken for credit if applied toward Public Affairs minor. May be repeated for credit with topic change. P/NP or letter grading.

191C. Variable Topics Research Seminars: Public Policy. (2) Seminar, two hours. Examination of particular subfields of policy studies (e.g., international policy, crime policy, policy history) in depth, with specific topics to be identified by instructor. Reading, discussion, and development of culminating project. Must be taken for credit if applied toward Public Affairs minor. May be repeated for credit with topic change. P/NP or letter grading.

191D. Variable Topics Research Seminars: Public Policy. (1) Seminar, one hour. Examination of particular subfields of policy studies (e.g., international policy, crime policy, policy history) in depth, with specific topics to be identified by instructor. Reading, discussion, and development of culminating project. Must be taken for credit if applied toward Public Affairs minor. May be repeated for credit with topic change. P/NP or letter grading.

193A. Marschak Colloquium: Social Sciences. (2) Seminar, two hours. Limited to undergraduate students. Attendance at biweekly Marschak Colloquium presentations, highly regarded and long-standing interdisciplinary lecture series given by leading social science experts, required. Discussion of lecture topics and research models in behavioral sciences. Letter grading.

197. Individual Studies in Public Policy. (2 or 4) Tutorial, four hours. Preparation: 3.0 grade-point average. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

201. Principles of Microeconomic Theory I. (4) Lecture, three hours; outside study, nine hours. First course in two-term sequence (see course 204) to prepare students for economic analysis of public policy, with review of economic principles and basic microeconomic theory and policy applications. Consumer theory and demand, producer theory and supply, equilibrium of product and factor markets. Letter grading.

202. American Political Institutions and Processes. (4) Lecture, three hours; outside study, nine hours. Designed to provide background necessary to develop strategies for dealing effectively with political environment of policy and administration. Discussion of U.S. constitutional arrangements, followed by instrumental and integrative examination of primary institutions of politics and governance from organized interests to legislatures, bureaucracies, and courts. Letter grading.

203. Statistical Methods of Policy Analysis I. (4) Lecture, three hours; outside study, nine hours. First course in two-term sequence (see course 208). Review of statistical principles useful to policy research and analysis. Topics include descriptive statistics, expectations, univariate distribution, probability, covariance and correlations, statistical independence, random sampling, estimators, unbiasedness and efficiency, statistical inference, confidence intervals, and hypothesis testing. Letter grading.

204. Principles of Microeconomic Theory II. (4) Lecture, three hours; outside study, nine hours. Requisite: course 201. Second course in two-term sequence (see course 201) covering both theory and policy applications. Topics include monopoly, factor markets, general equilibrium, welfare economics, externalities, public goods, uncertainty, and intertemporal optimization. Letter grading.

205. Bureaucracy and Public Management. (4) Lecture, three hours; outside study, nine hours. Problems posed by behaviors within and by bureaucracies. Conceptual tools for comprehending organization environment in which policy analysts work; tools for understanding role of manager with such organizations. Practical suggestions for policy analyst attempting to navigate waters of bureaucracy. Theoretical analysis integrated with case studies. Letter grading.

206. Political Economy of Policy Adoption and Implementation. (4) Lecture, three hours; outside study, nine hours. Analysis of how policy is formed, adopted, and implemented. How policies are formulated, by whom, how policy agendas are set, how to define relationships between politicians, bureaucrats, lobbyists, and media experts. Letter grading.

207. International Political Economy. (4) Lecture, three hours; outside study, nine hours. Examination of political, legal, and social institutions to show where the U.S. fits in among varieties of modern capitalism and business/government relations. Analysis of domestic policy options nations are pursuing in response to economic globalization, such as protectionism, mercantilism, and deregulation. Introduction to international coalitions being formed, including NAFTA, and to nongovernmental organizations created to deal with special problems such as global environmental crisis. Letter grading.

208. Statistical Methods of Policy Analysis II. (4) Lecture, three hours; outside study, nine hours. Requisite: course 203. Second core course in statistics and quantitative methods for M.P.P. degree. Quantitative studies of public policy, covering regression analysis and its application to public policy questions. Letter grading.

209. Management in the 21st Century. (4) Lecture, three hours; outside study, nine hours. Overview of moral philosophy, political theory, and public-sector ethics using readings from classical and contemporary literature and case studies. Consideration of various ways in which terms such as "democracy" and "liberty" are used in public discourse. Practice in developing and defending moral arguments, both orally and in writing. Letter grading.

210. Methods of Policy Analysis. (4) Lecture, three hours; outside study, nine hours. Preparatory course that precedes three-term 298A, 298B, 298C sequence in which students prepare major public policy projects and papers that are case studies of policy evaluation and implementation and are equivalent to professional master's theses. Papers build on prior core courses, internship experience, and policy cluster courses. Letter grading.

211. Normative Issues in Policy Analysis. (4) Lecture, three hours; discussion, one hour. Limited to graduate students. Introduction to some basic normative categories, arguments, and tools essential for addressing questions of public policy. Normative questions are those that concern whether actions, characters, or states of world are right or wrong—or, in less absolute cases, better or worse than possible alternatives. Allegedly, value-free methods of analysis do not help decide policy questions. Certain policy questions raise normative concerns sooner or more urgently than others: those that go beyond matters of economic efficiency and touch on questions of human dignity, equality, justice, or national or cultural traditions. Some questions that seem to be subject to efficiency analysis raise some strong ethical concerns distinct from those of efficiency. Discussion of disagreement that exists over both what efficiency is and in what cases or across what dimensions it ought to govern. Letter grading.

M212. Child Welfare Policy. (4) (Same as Social Welfare M290J.) Lecture, three hours. Development of social policy as it affects families and children from different cultural backgrounds and as it is given form in public child welfare system. Examination of development of infrastructure to support needs of children and families. S/U or letter grading.

M213. Mental Health Policy. (4) (Same as Social Welfare M290K.) Lecture, three hours. Examination of evolution of social policy and services for mentally ill, with emphasis on political, economic, ideological, and sociological factors that affect views of mentally ill and services they are provided. S/U or letter grading.

M214. Poverty, Poor, and Welfare Reform. (4) (Same as Social Welfare M290L and Urban Planning M246.) Lecture, three hours. Major policy and research issues concerning poverty and social welfare policy directed toward poor in U.S. S/U or letter grading.

M215. Health Policy. (4) (Same as Social Welfare M290M.) Lecture, three hours. Introduction to contemporary issues in healthcare financing and delivery, providing historical perspective on emergence of these issues. Examination of major public programs and their relationship to issues of access and cost. S/U or letter grading.

M216. Public Policy for Children and Youth. (4) (Same as Social Welfare M290N.) Lecture, three hours. Policy issues that affect children and adolescents in relation to their interaction with schools and community, with emphasis on impact of policy across federal, state, and local levels. S/U or letter grading.

M218. Research Design and Methods for Social Policy. (4) (Same as Urban Planning M204.) Lecture, three hours; outside study, nine hours. Limited to graduate students. How to become more sophisticated consumers and producers of qualitative and quantitative policy research. In first half of course, formal principles of research design; in second half, various data collection methods, including ethnography, interviewing, and survey design. Letter grading.

C219. Crime Control Policy. (4) Lecture, three hours; outside study, nine hours. Design, implementation, and evaluation of policies to control crime. Operations of major institutions within criminal justice system. Theories of crime causation and prevention and their relationship to impacts of alternative policies. Concurrently scheduled with course C119. Letter grading.

M220. Transportation, Land Use, and Urban Form. (4) (Same as Urban Planning M254.) Lecture, three hours. Historical evolution of urban form and transportation systems, intrametropolitan location theory, recent trends in urban form, spatial mismatch hypothesis, jobs/housing balance, transportation in strong central city and polycentric city, neotraditional town planning debate, rail transit and urban form. Letter grading.

M221. Travel Behavior Analysis. (4) (Same as Urban Planning M256.) Lecture, three hours. Requisites: courses 201 and 203, or Urban Planning 207 and 220B. Descriptions of travel patterns in metropolitan areas, recent trends and projections into future, overview of travel forecasting methods, trip generation, trip distribution, mode split traffic assignment, critique of traditional travel forecasting methods and new approaches to travel behavior analysis. Letter grading.

M222. Transportation Economics, Finance, and Policy. (4) (Same as Urban Planning M257.) Lecture, three hours. Overview of transportation finance and economics; concepts of efficiency and equity in transportation finance; historical evolution of highway and transit finance; current issues in highway finance; private participation in road finance, toll roads, road costs and cost allocation, truck charges, congestion pricing; current issues in transit finance; transit fare and subsidy policies, contracting and privatization of transit services. Letter grading.

M223. Transportation and Environmental Issues. (4) (Same as Urban Planning M258.) Lecture, three hours. Regulatory structure linking transportation, air quality, and energy issues, chemistry of air pollution, overview of transportation-related approaches to air quality enhancement; new car tailpipe standards; vehicle inspection and maintenance issues; transporta-

tion demand management and transportation control measures; alternative fuels and electric vehicles; corporate average fuel economy and global warming issues; growth of automobile worldwide fleet; automobile in sustainability debate. Letter grading.

M224A. Introduction to Geographic Information Systems. (4) (Same as Urban Planning M206A.) Lecture, three hours; laboratory, one hour. Preparation: one graduate-level statistics course, familiarity with one packaged statistics program. Principles of Geographic Information Systems (GIS) and applied techniques of using spatial data for mapping and analysis. Topics include data quality, data manipulation, spatial analysis, and information systems. Use of mapping and spatial analysis to address planning problem. Letter grading.

M224B. Advanced Geographic Information Systems. (4) (Same as Urban Planning M206B.) Lecture, four hours; laboratory, four hours. Requisite: course M224A or Urban Planning M206A. Principles and skills of geographic analysis and modeling; managing, processing, and interpreting spatial data. Especially useful for students interested in environmental, demographic, suitability, and transportation-related research. Scripts (Avenue), modeling (Spatial Analyst), network analysis, and transportation modeling (TransCAD). Letter grading.

225. Education Policy and Education Inequality. (4) Seminar, three hours; outside study, nine hours. Limited to graduate students. Examination of policies that may reduce socioeconomic and ethnic disparities in educational success. Topics include international and national comparisons of educational outcomes, private and public school choice, school accountability policies, interventions to improve school or teacher quality, parenting and preschool interventions, and supplemental educational services. Letter grading.

M226. Management Challenges and Tools for Nonprofit Sector. (4) (Same as Social Welfare M290V and Urban Planning M286.) Lecture, three hours; outside study, nine hours. Designed for graduate students. Fundamental building blocks for successful management in nonprofit sector. Students develop management skills in strategic thinking/problem solving, project management, team building, and negotiation. Use of case studies to troubleshoot critical challenges, from finance to crisis management to marketing, that nonprofit managers typically face. Letter grading.

M227. Nonprofit Sector, State and Civil Society. (4) (Same as Social Welfare M290S and Urban Planning M287.) Lecture, three hours; outside study, nine hours. Use of political economy perspective to analyze forces that have shaped rise and characteristics of nonprofit sector and its constituent elements. Examination of social history of nonprofit sector in U.S. Exploration of legal and policy environments and distinct organizational forms. Comparative perspective between U.S. and other countries. S/U or letter grading.

M228. Leadership, Development, and Governance of Nonprofit Organizations. (4) (Same as Social Welfare M241E and Urban Planning M288.) Lecture, three hours; outside study, nine hours. Designed for graduate students. Various patterns of community action for attaining social welfare objectives; research and field experience directed toward study of social problems within context of community planning; emerging patterns of physical, economic, and social planning within framework of social change theory. Letter grading.

CM230. Labor Markets and Public Policy. (4) (Same as Management M259C.) Lecture, three hours; outside study, nine hours. Designed for graduate students. Survey of major topics in economic analysis of labor markets and public policies toward labor market. Topics include labor force trends and measurement, compensation determination, productivity, internal labor markets, human capital, union wage effects, unemployment, and minority and female labor-market experience. Concurrently scheduled with course C142. S/U or letter grading.

CM231. Comparative Industrial Relations. (4) (Same as Management M255.) Lecture, three hours; outside study, nine hours. Requisite: Management 409 or elementary knowledge of labor economics. At national and international levels, historical and contemporary analytical comparison of political, social, and economic contexts influencing human resource systems of selected developed countries. In addition to discussing possible frameworks for analyzing human resource systems, examination of institutions and ideologies of labor, management, and government, and interaction of their power relationships; substance and manner of determination of "web of rules" governing rights and obligations of the parties; and resolution of conflicts. Concurrently scheduled with course C144. S/U or letter grading.

M232. Labor Relations: Process and Law. (4) (Same as Management M250A.) Lecture, three hours. Designed for graduate students. Consideration, at advanced level, of collective bargaining process, labor/management agreement, administration of the contract, law of labor/management relations, union structure and goals, and influence of external labor markets on labor relations. S/U or letter grading.

233. Employment Issues in California. (4) Lecture, three hours; outside study, nine hours. Designed for graduate students. Drawing on resources of UCLA Business Forecasting Project, introduction to general features of California labor market, analysis of employment fluctuations and forecasting techniques including linkages between employment fluctuations in California and elsewhere in the country, and social issues related to labor market. Letter grading.

234. Labor Markets and Social Policy. (4) Lecture, three hours; outside study, nine hours. Examination of analytical tools and conceptual models needed to understand policies directed toward people in lower tail of income distribution. Concepts include static and dynamic labor supply, labor demand, compensating differentials, human capital, and economic models of immigration and crime. Letter grading.

C235. Drug Abuse Control Policy. (4) Lecture, three hours; outside study, nine hours. Introduction to drug abuse as social problem and to drug abuse control as policy issue, with examination of both necessity and difficulty of making and executing wise policies around psychoactive substances. Concurrently scheduled with course C101. Letter grading.

237. Ethical Questions in Public Life. (4) Lecture, three hours; outside study, nine hours. Introduction to moral issues that commonly arise in public life. Ethics of political roles, compromise and moral integrity, lying and deception, place of rhetoric in defending stand on issues, politics and violence. Letter grading.

238. Issues in Cultural Policy. (4) Seminar, three hours; outside study, nine hours. Designed for graduate students. Survey of role of policy in shaping forms and meanings of culture and cultural activities in contemporary society. Overview of relevant theories of culture and their ramifications in such phenomena as consciousness, ideology, and identity. Empirical examination of what policymakers have said and done about promotion of culture in interests of various social goals. Contemporary trend of economic and cultural intersecting to be subject for trend analysis. Examination of globalization and national cultural interests in depth. General debate about logic and meaning of cultural politics in contemporary society and their consequences for trajectories of cultural policy at local, national, and international levels. Letter grading.

C239. Budget Politics, Social Policy, and Entitlement Reform. (4) Lecture, three hours; outside study, nine hours. Examination of politics of public budgeting in the U.S., with emphasis on financing of social safety net. Exploitation of budgetary process as setting both for gaining substantive knowledge about how government really works and for developing political skills required to influence resource allocation decisions. Concurrently scheduled with course C124. Letter grading.

M240. Theories of Regional Economic Development I. (4) (Same as Urban Planning M236A.) Lecture, three hours; discussion, one hour. Introduction to theories of location of economic activity, trade, and other forms of contact between regions, process of regional growth and decline, reasons for different levels of economic development, relations between more and less developed regions. Letter grading.

M241. Introduction to Regional Planning. (4) (Same as Urban Planning M230.) Lecture, three hours. Critical and historical survey of evolution of regional planning theory and practice, with particular emphasis on relations between regional planning and developments within Western social and political philosophy. Major concepts include regions and regionalism, territorial community, and social production of space. Letter grading.

242. Regional Development, Urbanization, and Industrial Policy. (4) Lecture, three hours; outside study, nine hours. Survey of regional development, with special reference to "new economic geography" and its relevance for formulation of local economic development policies. Letter grading.

M243. Community Development and Housing Policies: Roles of State, Civil Society, and Nonprofits. (4) (Same as Social Welfare M290U and Urban Planning M275.) Lecture, three hours; outside study, nine hours. Designed for graduate students. Examination of role of U.S. housing policy and role of government agencies and community organizations. Is problem housing or economic development? Should interventions be directed toward inner city housing markets or through neighborhood strategies? What lessons can be learned from experiences of other countries? Letter grading.

M244. Transportation Planning. (4) (Same as Urban Planning M255.) Lecture, three hours. Examination of how planners analyze, manage, and operate transportation systems. Measuring system performance, intelligent transportation systems, transportation system demand management, parking management, freight movement and facilities, public transit evaluation and management, paratransit, bicycle and pedestrian planning, transportation for elderly and disabled. Letter grading.

C245. Critical Policy Issues and Problems in Globalizing World. (4) Lecture, three hours; outside study, nine hours. To enable students to (1) think of world in dynamic terms, (2) be able to map, divide, and assemble world in many different ways, and (3) be able to articulate patterns of flux, change, and movement in world space and history. Concurrently scheduled with course C147. Letter grading.

M246. Electoral Democracy: Theory and Behavior. (4) (Same as Political Science M268B.) Seminar, three hours. Examination of both empirical and normative questions from rich variety of perspectives for scholars in all subfields of political science as well as policy students and others interested in these issues. Consideration of topics fundamental to both democratic theory and study of American politics—public opinion; nature and purpose of elections; representation; parties; and purpose of democracy as whole—through both classic political theory treatments and modern research in American political behavior. Letter grading.

M247. Strategic Planning for Public and Nonprofit Organizations. (4) (Same as Social Welfare M241F and Urban Planning M290.) Lecture, three hours; outside study, nine hours. Designed for graduate students. Technical processes of problem solving regarding substantive social welfare problems at community level. This form of community practice fills niche between professional and knowledge and skill set possessed by agency and program administrators on one hand and by policy analysts and policymakers on other. Letter grading.

M248. Toleration, Pluralism, and Diversity. (4) (Same as Political Science M216.) Seminar, three hours. Prior experience in political or legal theory helpful. Exploration of both abstract concepts of toleration and contemporary disputes. S/U or letter grading.

CM250. Environmental and Resource Economics and Policy. (4) (Same as Urban Planning M267.) Lecture, three hours. Requisites: courses 204 and 208, or Urban Planning 207 and 220B. Survey of ways economics is used to define, analyze, and resolve problems of environmental management. Overview of analytical questions addressed by environmental economists that bear on public policies. Concurrently scheduled with course C115. Letter grading.

251. Public Budgeting and Finance. (4) Lecture, three hours; outside study, nine hours. Limited to graduate students. How financial resources are allocated through budget processes at federal, state, and local levels of government in the U.S. and how each level of government finances its operations and capital investment programs, with particular attention to California. Students are organized into small groups to facilitate review of assigned readings and to report key information to class. Based on assigned readings, development of budget strategy matrix outlining best practices budget strategies to use in various resources availability contexts. Letter grading.

M260. Foundations of Social Welfare Policy. (4) (Formerly numbered M210.) (Same as Social Welfare M221A and Urban Planning M241.) Lecture, three hours; outside study, nine hours. Nature, roles, and history of welfare institutions in different societies; applicable social system theory of different components of welfare system; theory and research about welfare policies and organizational forms. S/U or letter grading.

M261. Aging Policy, Elderly and Families. (4) (Formerly numbered M211.) (Same as Social Welfare M290P.) Lecture, three hours; outside study, nine hours. Designed for graduate students. Examination of theoretical models and concepts of policy process and application to aging policy. Analysis of decision-making processes that affect social policies. Description of historical development of contemporary policy. Exploration of current proposals and issues. Letter grading.

M266. Advanced Topics in Health Economics. (4) (Same as Health Services M249E.) Seminar, four hours. Requisites: Health Services 200A, 200B, M236. Advanced treatment of number of topics in health economics, including mental health economics, pharmaceutical economics, and relationship between labor supply, welfare, and health. Letter grading.

M267. Medicare Reform. (4) (Same as Health Services M252.) Lecture, three hours; outside study, nine hours. Designed for graduate students. Analytical and managerial skills learned earlier to be used to analyze problems with existing medicare program and to develop specific options for reforming features of program to accommodate coming pressures generated by retirement of baby-boom generation. Letter grading.

M268. Microeconomic Theory of Health Sector. (4) (Same as Health Services M236.) Lecture, four hours; discussion, two hours. Preparation: intermediate microeconomics. Requisite: Biostatistics 100A. Microeconomic aspects of healthcare system, including health manpower substitution, choice of efficient modes of treatment, market efficiency, and competition. Letter grading.

M269. Healthcare Policy and Finance. (4) (Same as Health Services M269.) Seminar, three hours; outside study, nine hours. Exploration of demand for health insurance, policies for public insurance (Medicaid and Medicare), uninsured, and health insurance reform. Examination of effects of managed care on health and costs, consumer protection movement, and rise of competitive healthcare markets. Letter grading.

271. Urban Poverty, Workforce Development, and Public Policy. (4) Lecture, three hours; outside study, nine hours. Limited to graduate students. Examination of how urban labor markets function, particularly low-skill labor markets, and exploration of how public and private interventions affect outcomes for disadvantaged populations. In first half of course, major theories of low-skill workers' labor market problems in employment and wages; in second half, employment and training programs, policy initiatives and implementation, and new directions in workforce development. Letter grading.

C272. Crisis Decision Making in U.S. Foreign Policy. (4) Lecture, three or four hours; discussion, one hour (when scheduled). In-depth look at theory and practice of U.S. foreign policy-making. Assessment of competing theories of international relations and application to specific case studies. Weekly role plays of foreign policymakers and final crisis simulation exercise. Concurrently scheduled with course CM117. Letter grading.

C274. U.S. National Security Policy. (4) Lecture, three hours; outside study, nine hours. Limited to graduate students. Examination of contemporary U.S. national security challenges and how policymakers develop strategies to address them. Exploration of Cold War legacy, development of American national security strategic doctrine, and U.S. foreign policy-making process from 1945 to present. Examination of broad spectrum of issues confronting today's foreign policy leaders, from threats to vital U.S. interests (WMD proliferation and terrorism), to regional security and economic challenges (Iraq, China), to humanitarian intervention and nation-building (Darfur, Afghanistan). Students draft analytic options memos and deliver oral presentations on how to handle six current national security mini-cases. Provides overview of current challenges and hones student analytic skills to examine these challenges from strategic policy perspective. Concurrently scheduled with course CM123. Letter grading.

M280A. Research and Development Policy. (4) (Same as Management M292A.) Lecture, three hours. Examination of research and development as process and as element of goal-oriented organization. Factors affecting invention and innovation; transfer of technology; organizational and behavioral considerations; coupling of science, technology, and organizational goals; assessing of and forecasting technological futures. S/U or letter grading.

M280B. Growth, Science, and Technology. (4) (Same as Management M292B.) Lecture, three hours. Economic growth and change. Role of advances in science and technology, and actions of maximizing innovators and factors impinging on their behavior. How technological breakthroughs (or discontinuities) can form new industries or transform nature of and population of firms in existing industries. S/U or letter grading.

M289A-M289B. Immigration, Racial Change, and Education in 21st-Century Metropolis. (4-4) (Same as Education M289A-M289B, Political Science M287A-M287B, and Sociology M290A-M290B.) Seminar, four hours. Examination of metropolitan American society and institutions at beginning of 21st century. Consideration of best available information on patterns of settlement, changing functions of urban space and institutions, and issues of opportunity linked to urban structure in society facing unprecedented demographic change that will end primarily European domination of our society by mid-century, creating democracy with no racial or ethnic majority. How this demographic transition and postindustrial transformation of urban functions and space interact to shape opportunity and inequality. Vast economic transformations, brought about by globalization of workplace and dramatic decline of industrial employment in advanced nations, not only greatly raise stakes on creating equal opportunity but also cut off what were previously extremely important parts of intergenerational mobility. In Progress (M289A) and letter (M289B) grading.

290. Special Topics in Public Policy. (4) Discussion, three hours. Advanced seminar on emerging issues in public policy. May be repeated for credit. Letter grading.

M293. Privatization, Regulation, and Public Finance. (4) (Same as Urban Planning M243.) Lecture, three hours; outside study, nine hours. Requisite: course 201. Evaluation of economic and political determinants of trend toward privatizing public services, and equity and efficiency outcomes of this trend as expressed through new pricing, financing, and ser-

vice-level policies. Exploration of new regulatory role this trend implies for state and local governments. Letter grading.

294. Education Markets and Education Policy. (4) Lecture, three hours. Designed for graduate students. Provides set of tools that can be used to analyze pressing policy questions in field of education and some substantive background in policy issues of the day. Letter grading.

M295. Law and Poor. (4) (Same as Law M215, Social Welfare M290R, and Urban Planning M248.) Lecture, three hours. Designed for graduate students. Study of major income-maintenance programs in U.S., with emphasis on interaction of moral attitudes toward poor and structure and implementation of law, policy, and administration. Current reform consensus and major reforms. Letter grading.

297A. Marschak Colloquium: Policy Implications in Behavioral Sciences. (2) Seminar, two hours. Limited to graduate students. Students attend biweekly Marschak Colloquium presentations given by leading social science experts. Analysis and discussion of lecture topics and research models in behavioral sciences in this highly regarded and long-standing interdisciplinary lecture series that meets separately from colloquium presentations. Letter grading.

297B. Introduction to Public Policy. (2) Lecture, three hours; discussion, one hour. Designed for graduate students. Introduction to purposes and methods of public policy analysis. Exposure to key concepts and tools, such as market failures, decision analysis, cost/benefit analysis, group behavior, and implementation. Case studies supplement lectures and texts. S/U grading.

297C. Public Policy Analysis Lectures. (2) Activity, two hours. Limited to M.P.P. students. Venue for policymakers, practitioners, and academics to present, discuss, and analyze current policy questions. Attending, formally analyzing, and engaging with policy professionals at these extra-curricular programs adds to pedagogical and intellectual maturity of students as they gain greater understanding of complexity of public policy issues by hearing wide variety of voices. S/U grading.

298A. Applied Policy Project I. (2) Seminar, 90 minutes; outside study, four and one half hours. Requisite: course 210. Limited to M.P.P. students. First course of year-long sequence designed to ensure that students and their teams are fully prepared to launch their projects at start of Winter Quarter. Students form teams that are assigned to seminars and instructors, identify clients, select and refine policy questions motivating their projects, develop and refine basic work plans, learn about various methods of data collection, and complete and submit all necessary forms required for human subjects research. S/U grading.

298B. Applied Policy Project II. (6) Seminar, three hours; outside study, 15 hours. Preparation: completion of M.P.P. core curriculum, two policy cluster courses, and internship (unless waived). Requisite: course 298A. Second course in three-term sequence in which students prepare major public policy projects and papers that are case studies of policy evaluation and implementation and are equivalent to professional master's theses. Papers build on prior core courses, internship experience, and policy cluster courses. Letter grading.

298C. Applied Policy Project III. (2) Seminar, two hours. Preparation: completion of M.P.P. core curriculum, two policy cluster courses, and internship (unless waived). Requisite: course 298B. Third course in three-term sequence in which students complete research and report writing for their year-long projects, conduct oral presentations of their applied policy projects, and give written feedback on other student presentations. Letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

596. Directed Studies. (2 to 8) Tutorial, to be arranged. Limited to graduate students. Individual programming for selected students to permit pursuit of a subject in greater depth. S/U or letter grading.

RADIATION ONCOLOGY

David Geffen School of Medicine

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fax: (310) 794-1984
<http://radonc.ucla.edu>

Chairs

Michael L. Steinberg, M.D., *Chair*
William McBride, D.Sc., *Vice Chair, Division of Experimental Radiation Oncology*

Scope and Objectives

The Department of Radiation Oncology includes clinical divisions at the UCLA Medical Plaza and Reagan UCLA Medical Center, West Los Angeles VA Medical Center, Providence Holy Cross Medical Center in Santa Clarita and Mission Hills, and Children's Hospital of Los Angeles and include the Divisions of Brachytherapy, Clinical and Molecular Oncology, and Medical Radiation Physics. Laboratory, clinical, and translational research are facilitated at all locations.

The primary clinical mission of the department is the management of patients who have cancer. The purpose of using radiation therapy, rather than or in addition to surgery, is to preserve function and/or cosmesis while eliminating the cancer. Other activities include total body irradiation before bone marrow transplantation and stereotactic radiosurgery for A-V malformations, meningiomas, and malignant intracranial lesions. Research interests include clinical trials, radiation biology, radiation modifiers, molecular biology, immunology, and applied physics. Knowledge of the disease in question, the comparative efficacy of radiation therapy and other methods, radiation biology and pathophysiology, and the physical characteristics of various radiations is essential.

The educational programs serve medical, dental, basic science (biology and physics), nursing, and radiation therapy students, and community and postgraduate physicians; there also is a four-year program for residents who are qualifying for certification in radiation oncology by the American Board of Radiology.

For further details on the Department of Radiation Oncology and a listing of the courses offered, see <http://radonc.ucla.edu>.

RADIOLOGICAL SCIENCES

David Geffen School of Medicine

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Chair

Dieter R. Enzmann, M.D. (*Leo G. Rigler Professor of Radiological Sciences*)

Scope and Objectives

The medical student program in radiological sciences is designed to introduce students to the spectrum of diagnostic imaging modalities and their role in the clinical management of patients. It provides knowledge of essential radiographic anatomy and key imaging features of common diseases. The basic principles of all forms of diagnostic imaging pertaining to thoracic, musculoskeletal, gastrointestinal, genitourinary, cardiac, neuroradiology, mammography, pediatrics, emergency radiology, computed tomography, magnetic resonance imaging, ultrasound, and interventional radiology are provided. Students acquire interpretative skills by didactic instruction and interactive teaching sessions and through the use of Web-based teaching materials. A longitudinal core clerkship is offered during the third year, with a comprehensive examination.

Greater depth of experience is provided by the three weeks of elective clerkship offered to fourth-year medical students that emphasizes training in general diagnostic radiology, angiography/interventional radiology, neuroradiology, and pediatric radiology.

For further details on the Department of Radiological Sciences, see <http://www.radiology.ucla.edu>.

RELIGION, STUDY OF

*Interdepartmental Program
College of Letters and Science*

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e-mail: philcounselor@humnet.ucla.edu
<http://www.religion.ucla.edu/index.php/students/major>

Ra'anana S. Boustana, Ph.D., *Chair*

Faculty Administrative Committee

Carol A. Bakhos, Ph.D. (*Near Eastern Languages and Cultures*)
S. Scott Bartchy, Ph.D. (*History*)
Ra'anana S. Boustana, Ph.D. (*History*)
Brian P. Copenhaver, Ph.D. (*History, Philosophy*)
Donald J. Cosentino, Ph.D. (*World Arts and Cultures*)

Jacco Dieleman, Ph.D. (*Near Eastern Languages and Cultures*)
 Lowell Gallagher, Ph.D. (*English*)
 Nile S. Green, Ph.D. (*History*)
 Natasha L. Heller, Ph.D. (*Asian Languages and Cultures*)
 Kenneth Reinhard, Ph.D. (*Comparative Literature, English*)
 Allen F. Roberts, Ph.D. (*World Arts and Cultures*)
 Mary Nooter Roberts, Ph.D. (*World Arts and Cultures*)
 Ronald W. Vroon, Ph.D. (*Slavic Languages and Literatures*)

Scope and Objectives

The undergraduate major in the Study of Religion equips students to understand and compare creatively the worldwide varieties of core convictions, stories, texts, rituals, and practices known collectively as religion. Students complete courses in a wide range of departments in which religious phenomena are analyzed, including Anthropology, Art History, Asian Languages and Cultures, Classics, Comparative Literature, English, History, Near Eastern Languages and Cultures, Philosophy, Political Science, and World Arts and Cultures. Students can anticipate gaining versatile intellectual tools for approaching, analyzing, and appreciating the deep roots, human motivations, and history of the formation of religious traditions in their respective cultural contexts. Within this interdepartmental program, students may focus in depth on one or more specific religions. Students may wish to select this major in combination with a second major field, a minor, or related language study.

Undergraduate Study

Study of Religion B.A.

Preparation for the Major

Required: History 4; Philosophy 2; two courses from Anthropology 9, Asian 60, History 1A, 1B, 1C, 9A, 9C, 9D, M10A, 10B, 11A, 11B.

Transfer Students

Transfer applicants to the Study of Religion major with 90 or more units must complete the following introductory courses prior to admission to UCLA: one history of religions course, one philosophy of religion course, and two courses from sociocultural anthropology, Buddhism, history of Western civilization, Asian civilizations, civilizations of Africa, and history of China.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: A minimum of 14 upper division courses from the list below, of which at least four (including Study of Religion 100 and Philosophy 175) must be from Group I, at least two must be from each of Groups II and IV, and at least three must be from Group III (at least one on each of the three religious traditions listed). No more than five of the 14 may be from any one group. A course may be taken twice, on different topics, for credit toward the major

where repetition is allowed by the department offering the course. Variable topics courses not listed below (e.g., History 191) may be approved by the adviser as satisfying requirements for which their content is appropriate. A maximum of two upper division courses, not listed below, in an ancient language relevant to the course of study may be applied toward the major requirements (but not the group requirements) with consent of the adviser.

Special studies courses (197 and 199) may be applied toward the major but not toward a group requirement; a maximum of 12 units, approved by the adviser, may be applied. No course for the major or preparation for the major may be taken on a P/NP grading basis.

Approved courses (courses marked with an asterisk have readings in foreign languages; see departmental course listings for requisites):

Group I—Methods: Anthropology 130, 156, History 186C, Philosophy 175, Study of Religion 100, 110, 120, Theater 101A

Group II—Nonliterate and Ancient Religious Traditions: Ancient Near East 130, Anthropology 114P, 114Q, 171, 174P, 177, Classics 166A, 166B, M167, 168, English 111D, History M185D, Iranian 170, Slavic 179, World Arts and Cultures 111B, 112B, 134

Group III—Western and Near Eastern Religious Traditions: Christianity: Art History 105A, Classics M170C, Greek *130, History 121B, 142C, 186A, 186B, 186C, Philosophy 100B, 104, 105, 107, 118, 155, Slavic 201; **Islam:** Arabic *120, Art History C104C, History 106A, 108A, Islamics 110; **Judaism:** Ancient Near East 162, 170, Comparative Literature M101, Hebrew *120, 125, *130, History M182A, M182B, M182D, M182E, M182F, Jewish Studies 130, M150A, 150B, Sociology 159

Group IV—South Asian and East Asian Traditions: Art History 114A, 114C, 114D, 114E, 114F, Asian 151, 162, Chinese C160, *165, C175, 265A, 265B, History 173C, 174A, 185B, 185C, Japanese C160, 161, 175, 265A, Korean C160, *165, 175, South Asian 175

Honors Program

The honors program provides exceptional students with an opportunity to do independent research under the tutorial guidance of a faculty member. Students admitted to honors should take three 199 courses under the guidance of the sponsoring professor. The first 199 course should be taken in Spring Quarter of the junior year, the second during the following Fall Quarter, and the third during Winter Quarter of the senior year. The three courses count as part of the regular requirement of 14 upper division courses. The program culminates in an honors thesis.

To qualify for admission students should have a minimum grade-point average of 3.4. The 199 courses designed for the program and the thesis topic should be approved by the committee in charge of the major.

For further information, contact the student affairs officer or the faculty adviser at the program address.

Study of Religion

Upper Division Courses

100. Undergraduate Seminar: Biography and Autobiography in Study of Religion. (4) Seminar, four hours. Stimulation and discipline for refining empathetic and critical understanding of contemporary religious experiences in wide variety of cultural contexts. Drawing on autobiographies and with participants trained in course on how to take oral histories, participants apply sophisticated tools for analysis of role of religion in personal life. Students write brief biographies, based on extensive interviews, of one adult person who is active or reactive participant in one religious tradition other than one most familiar to researchers. Letter grading.

110. Religion and Violence. (4) Seminar, three hours; discussion, one hour. Exploration of capacity of religion to mobilize and legitimate violence. Materials include theoretical texts by Rene Girard, Walter Burkert, Jonathan Z. Smith, and David Rapoport and case studies dealing with religion and violence in India, Northern Ireland, Egypt, Lebanon, Israel, Palestine, Sri Lanka, and the U.S. Letter grading.

120. Abrahamic Religions: Traditions in Tension. (4) Seminar, three hours. Examination of Abrahamic tradition as received and developed by Jews, Christians, and Muslims according to rubrics of linkage and interaction, with view both to potential clashes in the 21st century and to resources inherent in these traditions for heading off such clashes and misunderstandings. Letter grading.

140. Undergraduate Seminar: Study of Religion. (4) (Formerly numbered 100.) Seminar, three hours. Interdisciplinary approach to some major topics in study of religion, such as religion and politics, mysticism, ideas of revelation, myth and religion, worship and ritual. May be repeated for credit with consent of instructor. P/NP or letter grading.

199. Directed Research in Study of Religion. (2 to 4) Tutorial, one hour. Limited to juniors/seniors. Supervised individual research under guidance of faculty mentor. Culminating paper or project required. Twelve units may be applied toward major. Individual contract required. Letter grading.

ROTC PROGRAM – AEROSPACE STUDIES

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William E. Peris, M.S., M.O.A., *Lieutenant Colonel, Chair*

Professor

William E. Peris, M.S., M.O.A., *Lieutenant Colonel*

Adjunct Assistant Professors

Claudia D. Denton-Miyashiro, M.S., *Captain*
 Jared A. Grady, M.B.A., *First Lieutenant*

Scope and Objectives

In accordance with the National Defense Act of 1920 and with the concurrence of The Regents of the University, a unit of the Army Senior Division Reserve Officers' Training Corps (ROTC) was established on the Los Angeles campus of the University in July 1920. Navy and Air Force units were established in 1938 and 1949 respectively.

This voluntary training allows students to qualify for an officer's commission in the Army, Navy/Marine Corps, or Air Force while completing their college education. The ROTC curricula are not considered academic majors, but ROTC courses may be taken as free electives and applied toward the total course requirements of a major. The ROTC program is also available through UCLA Extension.

All three ROTC departments offer voluntary four-year programs for incoming freshmen and two-year programs for current and transfer students. All have leadership laboratories that teach leadership and management skills.

All commissions are reserve commissions. Active duty obligation following commissioning varies depending on branch of service and designated career field or occupational specialty.

Scholarships

ROTC Scholarships are awarded on a competitive basis to U.S. citizens regardless of parents' income. Scholarships provide tuition, a book allowance, fees, and a tax-free monetary allowance between \$300 and \$500 per month during the academic year. Applications for scholarships may be obtained at <http://www.afrotc.com> or by calling (310) 825-1742. Completed applications should be submitted prior to August 15 for early consideration and no later than December 1 of the year preceding college matriculation. Two-year scholarship applications may be obtained from the UCLA Aerospace Studies Department and are considered when received.

Air Force ROTC Program

Air Force ROTC provides selected students the opportunity to develop those attributes essential to positions of high responsibility as commissioned officers in the U.S. Air Force. This includes understanding Air Force history, doctrine, operating principles, and national security policies, demonstrating the ability to apply modern principles of management and human relations in the Air Force environment, and mastering of leadership theory and techniques. Students must demonstrate dedication to their assignments, willingness to accept responsibility, and the ability to think critically and communicate with clarity and precision.

Undergraduate Study

Four-Year Program

The four-year program is available to first-term freshmen and those full-time students with at least three and one half years of undergraduate

and/or graduate study remaining and consists of an initial two-year General Military Course, or GMC (Aerospace Studies 1A, 1B, 1C, 20A, 20B, and 20C), followed by a two-year Professional Officer Course (POC) described under Two-Year Program. GMC participation requires one hour of academic class and two hours of leadership laboratory each week during the academic year. Students incur no military obligation for GMC participation unless they qualify and accept an Air Force ROTC Scholarship during or after their sophomore year.

Students who complete GMC and wish to enter POC attend a four-week field training course the summer following GMC completion. At field training, students are provided meals, quarters, clothing, and travel and incidental expenses. Subjects covered at field training include junior officer training, aircraft and aircrew orientation, career orientation, survival training, base functions, Air Force environment, and physical training.

Two-Year Program

The two-year program is known as the Professional Officer Course (POC) and consists of Aerospace Studies 130A, 130B, 130C, 140A, 140B, and 140C. POC participation requires three hours of leadership laboratory and three hours of academic class each week during the academic year.

Requisites for the two-year program are successful completion of the GMC and a four-week field training course (see Four-Year Program above), or successful completion of a six-week field training program on an Air Force base during the summer preceding enrollment in the program.

Students interested in the six-week field training program must apply to the department chair early during Fall Quarter of their sophomore year. U.S. citizenship is required. There is no obligation to apply. Students are selected on a competitive basis with consideration given to academic major, grade-point average, aptitude examination scores, performance during an officer board interview, and a physical fitness test.

Students selected for the six-week summer field training are provided meals, quarters, clothing, and travel and incidental expenses. Subjects are the same as those in the four-week course plus the academic portion of the GMC (see Four-Year Program above).

Students enrolled in the POC incur a military obligation and are paid from \$450 to \$500 per month during the academic year. Additionally, they may compete for a scholarship up to full tuition, fees, and \$900 for textbooks. Graduation and successful completion of the POC leads to a commission as a second lieutenant. Cadets then report to one of the challenging assignments in the Air Force.

Aerospace Studies

Lower Division Courses

Freshman-Year Courses

Z. Leadership Laboratory. (No credit) Laboratory, three hours. Mandatory for and limited to Air Force ROTC cadets. Provides cadets with practical command and staff leadership experiences through performance of various tasks within framework of organized cadet corps. As integral part of aerospace studies curriculum, provides experiences designed to develop leadership potential and serves as orientation to active duty. No grading.

1A-1B-1C. Foundation of U.S. Air Force. (2-2-2)

Lecture, one hour. Survey course designed to introduce students to U.S. Air Force and Air Force Reserve Officers' Training Corps. Topics include mission and organization of Air Force, officership and professionalism, military customs and courtesies, Air Force officer opportunities, group leadership problems, and introduction to communication skills. P/NP or letter grading.

Sophomore-Year Courses

20A-20B-20C. Evolution of U.S. Air Force Air and Space Power. (2-2-2) Lecture, one hour. Historical survey of air and space power designed to motivate students to transition from Air Force ROTC cadet to officer candidate. Featured topics include Air Force heritage and leaders; introduction to air and space power through examination of competencies, functions, and doctrines; and continued application of communication skills. P/NP or letter grading.

Upper Division Courses

130A-130B-130C. Air Force Leadership Studies. (4-4-4) Lecture, three hours. Requisites: courses 1A, 1B, 1C, 20A, 20B, 20C. Study of leadership and quality management fundamentals, professional knowledge, Air Force doctrine, leadership ethics, and communication skills required of Air Force junior officers. Use of case studies to examine Air Force leadership and management situations as means of demonstrating and exercising practical application of concepts being studied. P/NP or letter grading.

140A-140B-140C. National Security Affairs/Preparation for Active Duty. (4-4-4) Lecture, three hours. Requisites: courses 1A, 1B, 1C, 20A, 20B, 20C. Study of national security processes, regional studies, advanced leadership ethics, and Air Force doctrine. Special topics focus on military as profession, officership, military justice, civilian control of military, preparation for active duty, and current issues affecting military professionalism. Within this structure, continued emphasis on refining communication skills. P/NP or letter grading.

197. Individual Studies in Aerospace Studies. (2 or 4) Tutorial, three hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

ROTC PROGRAM – MILITARY SCIENCE

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Shawn A. Phelps, M.A., *Lieutenant Colonel,
Chair*

Professor

Shawn A. Phelps, M.A., *Lieutenant Colonel*

Adjunct Assistant Professors

Christopher M. Dittami, B.S., *Captain*
Simon Y. Kim, B.S., *Captain*
Brian M. McDermott, B.S., *Captain*
William N. Ritch, B.S., *Major*

Scope and Objectives

In accordance with the National Defense Act of 1920 and with the concurrence of The Regents of the University, a unit of the Army Senior Division Reserve Officers' Training Corps (ROTC) was established on the Los Angeles campus of the University in July 1920. Navy and Air Force units were established in 1938 and 1949 respectively.

This voluntary training allows students to qualify for an officer's commission in the Army, Navy/Marine Corps, or Air Force while completing their college education. The ROTC curricula are not considered academic majors, but ROTC courses may be taken as free electives and applied toward the total course requirements of a major. The ROTC program is also available through UCLA Extension.

All three ROTC departments offer voluntary four-year programs for incoming freshmen and two-year programs for current and transfer students. The Army also offers a three-year program for students who apply before the end of their freshman year. All have leadership laboratories that teach leadership and management skills.

All commissions are reserve commissions. Active duty obligation following commissioning varies depending on branch of service and designated career field or occupational specialty. The Army offers both active- and reserve-duty opportunities directly after commissioning.

Scholarships

ROTC Scholarships are awarded on a competitive basis to U.S. citizens regardless of parents' income. Scholarships provide full tuition or housing (on or off campus) up to \$10,000, a \$1,200 allowance for books and fees, and a tax-free monetary allowance between \$300 and \$500 per month during the academic year. Applications for four-year scholarships may be obtained at <http://www.armyrotc.com>, by calling (310) 825-7381, or by e-mail to armyrotc@milsci.ucla.edu. Completed four-year applications

should be submitted by December 31 of the year preceding college matriculation. Two- and three-year scholarship applications may be obtained from the UCLA Military Science Department and are considered when received.

Army ROTC Program

Army ROTC is a program that enables students to become officers in the U.S. Army, Army Reserves, or Army National Guard while earning a college degree. The curriculum supplements students' academic majors by offering elective courses ranging from leadership and management to military law. Courses are augmented with leadership laboratories that stress practical skills such as first aid, land navigation, survival techniques, rappelling, military tactics, and scenario-driven leadership reaction courses. Non-ROTC students may enroll in many of the military science courses without enrolling in the ROTC program.

Additionally, students who decide to become Army officers can receive summer training in military parachuting (Airborne School at Fort Benning, GA), helicopter operations that include rappelling from a hovering helicopter (Air Assault School in Hawaii), and mountaineering operations (Northern Warfare School in Alaska).

Scholarships are available for two, three, and four years of academic study and are awarded on a competitive basis. Army Scholarships pay for full tuition and mandatory fees or housing, up to \$10,000, and provide a tiered stipend ranging from \$3,000 to \$5,000 per year and a \$1,200 book allowance. Nonscholarship, contracted ROTC cadets also receive the tiered stipend of \$3,000 to \$5,000 per year. Students in the program also compete for over \$35,000 in merit-based scholarships provided annually by various private organizations that support the Army ROTC program. Additionally, students may work part-time as officer trainees in local Army Reserves or National Guard units through the simultaneous membership program (SMP). Contracted students can fly free on military aircraft within the continental U.S. on a space-available basis.

Students may select a branch of the Army in which to be commissioned from 16 specialty fields, including military intelligence, aviation, signal communications, finance, logistics, nursing, and engineering. Prior to completion of the ROTC program, students may request to go on active duty or serve part-time in the Army Reserves or National Guard.

Undergraduate Study

Students aspiring to become Army officers follow prescribed course sequences with the Military Science Department and a physical fitness program. Generally, the courses consist of one 2- to 4-unit course per term and physical fitness sessions one to three times per week, depending on the participation-level requirements.

The military science curriculum is divided into two parts: (1) the Basic Course, two years of lower division study during which students

must complete six military science courses and (2) the Advanced Course, two years of upper division study consisting of six military science courses, one military history course, and a five-week summer camp.

Army ROTC students must satisfy the military history requirement by completing Military Science 110 or another history course approved by the chair.

Transfer students and others who were unable to enroll in the Basic Course can receive equivalent credit in several different ways (see Two-Year Program below).

Admission to the Advanced Course is limited to selected students who meet all academic and physical requirements. Students in this course receive a subsistence allowance between \$450 and \$500 a month for 10 months during each of the two academic years, plus military science uniforms. After completion of the Advanced Course and graduation, students have the opportunity to be commissioned as second lieutenants in one of the Army's 16 specialty areas in either the Army National Guard, Reserves, or Active Army. Students' preferences are a major factor in determining which specialty is awarded.

Students selected for Advanced ROTC must attend a five-week leadership development and assessment course between their Military Science III and IV years. Cadets receive an allowance for travel expenses and are paid for attendance.

The active duty obligation for those students selected to enter the Reserves or National Guard is for initial training, and only for a period of several months. The active duty obligation for those students commissioned into the Active Army is three years. Students who accept ROTC scholarships and enter the Active Army serve one additional year. ROTC students wishing to obtain certain advanced degrees may be granted a delay in reporting to their initial assignment.

Four-Year Program

Students are enrolled in the Basic Course (freshman and sophomore years) on a voluntary basis. After completion of the Basic Course and before entrance into the Advanced Course (junior and senior years), students are required to execute a contract with the Department of the Army agreeing to complete the Advanced Course and accept a commission if offered.

Two-Year Program

The two-year program is designed for students who receive placement credit for two years of ROTC and directly enter the Advanced Course. Placement credit may be given for completing three years of high school Junior ROTC, attending a paid ROTC Leaders' Training Course, membership in the Army Reserves or National Guard, completing two years of college-level Air Force or Navy ROTC, or previous active duty military service. The Army also allows enrollment in the two-year program while students attend graduate school.

Commissioning

Successful completion of the Advanced Course program and a bachelor's degree may lead to a commission as a second lieutenant in the Army Reserves, National Guard, or Active Army.

Military Science

Lower Division Courses

Z. Leadership Laboratory. (No credit) Laboratory, three hours (lower division cadets) or four hours (upper division cadets). All cadets must be concurrently enrolled in a military science course; upper division cadets must also be under a contracted obligation with department. Designed to allow cadets to apply leadership techniques and military skills taught in classroom and to develop their confidence as future military officers. No grading.

11. Foundations of Officership. (2) Lecture, one hour. Introduction to issues and competencies that are central to commissioned officer's responsibilities. Framework established to understand officership, leadership, military customs, briefings, and life skills such as physical fitness, nutrition, and time management. P/NP or letter grading.

12. Basic Military Leadership. (2) Lecture, one hour. Introduction to fundamentals of leadership, Army leadership values, ethics, and counseling techniques. Foundation of basic leadership fundamentals central to commissioned officer's responsibilities established. P/NP or letter grading.

13. Leadership Development. (2) Lecture, one hour. Introduction to military problem solving, methodology students can use in their daily lives. Experiential exercises in goal setting and military writing style. Broad overview of life in Army. P/NP or letter grading.

14. Principles of Land Navigation Applicable in Maneuver. (2) Lecture, one hour; discussion, one hour. Introduction to topographic maps and aerial photographs and their relation to land navigation; conceptual linkage to basic military tactics. Topics include map coordinate systems, scale and distance relationships, intersection and resection, photo interpretation, squad and platoon operations, and resource planning techniques. Introduction to new technologies, including Global Positioning Systems (GPS).

18. Modern Guerrilla Warfare. (2) Lecture, one hour; discussion, one hour. Limited to undergraduate students. Introduction to low intensity conflict and guerrilla strategies; explanation/discussion of political, economic, religious, and social factors contributing to civil unrest and/or insurgencies. Topics include non-military responses, military tactics, interrelationship of military and government, psychological warfare, and civic actions.

21. Individual Leadership Development. (3) Lecture, two hours. Introduction to various individual leadership personality types, in combined lecture, discussion, and experiential learning, to assist students in development of their own individual leadership style. Additional emphasis on military factors and principles of leadership, goal setting, basic communication, and consideration of others. P/NP or letter grading.

22. Leadership Development and Military Planning. (3) Lecture, two hours. Discussion of various methods of communication, planning, and decision making, through combined lecture, discussion, and experiential learning, with focus on written communication and group communication essential for leadership development. Introduction to and application of military planning process in developing operations orders. P/NP or letter grading.

23. Subordinate Development and Army Organization. (3) Lecture, two hours. Discussion/application of team-building techniques and subordinate development, through combined lecture, discussion, and experiential learning, with additional focus on commissioned officer, branches, and Army organization. Ap-

plication of counseling techniques, motivation, and consideration of ethics and values for modern leaders. P/NP or letter grading.

24. Theory of Warfare. (2) Inquiry into theory, nature, causes, and elements of warfare, with attention also to evolution of weapons and warfare.

Upper Division Courses

110. U.S. Military History. (3) Lecture, three hours; discussion, one hour. Survey of American military history from 1860 to the present. Causes of war, strategy, tactics, and technological developments set against economic, political, and diplomatic concerns. Impact of warfare on society.

131. Tactical Planning and Analysis. (4) Lecture, three hours; laboratory, four hours. Introduction to leadership development process used to evaluate military leadership performance. Examination of how to conduct individual and small unit training as well as introduction to basic principles of tactics. Emphasis on study of reasoning skills, troop leading procedures, and military orders process. P/NP or letter grading.

132. Army Officership and Communication. (4) Lecture, three hours; laboratory, four hours. Examination of officership that culminates in detailed case study. Interpersonal communication, with focus on general communication theory as well as written and spoken communication skills. Presentation of information briefing to receive feedback from both instructor and fellow students. P/NP or letter grading.

133. Leadership and Problem Solving. (4) Lecture, three hours; laboratory, four hours. Examination of role communications, values, and ethics play in effective leadership, including ethical decision making, consideration of others, transactional and transformational leadership, and survey of Army leadership doctrine. Emphasis on improving oral and written communication abilities and leadership development and assessment. P/NP or letter grading.

141. Leadership and Management. (4) Lecture, three hours; laboratory, four hours. Interactive course to develop student proficiency in planning and executing complex training operations. Counseling techniques and development of skills needed to lead various organizations. Exploration of training management, leadership skills, and developmental counseling techniques. P/NP or letter grading.

142. Leadership, Ethics, and Military Law. (4) Lecture, three hours; laboratory, four hours. Interactive course to enhance student understanding of organizational culture, leadership, and ethics. Understanding and enhancement of leader-member relations, assessment of organizational culture and ethical climate, and how to effect change in organizations. Exploration of foundations of military law and law of war. P/NP or letter grading.

143. Officership: Professional Military Leadership. (4) Lecture, three hours; laboratory, four hours. Capstone interactive leadership course to prepare students for challenges of being commissioned officers in U.S. Army by discussing various leadership challenges and case studies. Study of military units, with specific emphasis on joint operations involving Army, Navy, Air Force, and Marine Corps assets, military operations other than war, and global war on terror. Other topics include personnel administration, maintenance management, and financial planning. P/NP or letter grading.

197. Individual Studies in Military Science. (2 to 4) Tutorial, four hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

ROTC PROGRAM – NAVAL SCIENCE

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Michael C. Palmer, M.A., *Major, U.S. Marine Corps*

Scope and Objectives

In accordance with the National Defense Act of 1920 and with the concurrence of The Regents of the University, a unit of the Army Senior Division Reserve Officers' Training Corps (ROTC) was established on the Los Angeles campus of the University in July 1920. Navy and Air Force units were established in 1938 and 1949 respectively.

This voluntary training allows students to qualify for an officer's commission in the Army, Navy/Marine Corps, or Air Force while completing their college education. The ROTC curricula are not considered academic majors, but ROTC courses may be taken as free electives and applied toward the total course requirements of a major. The Naval Science Department offers a minor in Naval Science. The ROTC program is also available through UCLA Extension.

All three ROTC departments offer voluntary four-year programs for incoming freshmen and two-year programs for current and transfer students. All have leadership laboratories that teach leadership and management skills.

All commissions are reserve commissions. Active duty obligation following commissioning varies depending on branch of service and designated career field or occupational specialty.

Scholarships

ROTC Scholarships are awarded on a competitive basis to U.S. citizens regardless of parents' income. Scholarships provide tuition, a book allowance, fees, and a tax-free monetary allowance between \$250 and \$400 per month during the academic year. Applications for scholarships may be obtained at <https://www.nrotc.navy.mil> or by calling (800) 628-7682. Completed applications should be submitted prior to August 15 for early consideration and no later than December 1 of the year preceding college matriculation. Two-year scholarship applications may be obtained from the UCLA Naval Science Department and are considered when received.

Navy/Marine Corps ROTC Program

The Department of Naval Science provides professional training for students leading to a reserve commission at graduation in the U.S. Navy or Marine Corps. Through the Naval Reserve Officers' Training Corps (NROTC), scholarship students receive full tuition, fees, books, and subsistence pay of \$250 to \$400 per month. Nonscholarship students may apply to participate as members of the midshipman battalion under the NROTC College Program and, like NROTC Scholarship students, they also receive a reserve commission at graduation. Because of the rapid development of highly technical ship systems, aviation, and other military equipment, science and engineering majors are highly desirable; however, Navy/Marine Corps Scholarships are currently available to students pursuing any major offered by the University, as long as they agree to complete basic technical requirements. In addition to University requirements, Navy option midshipmen must complete 26 units and Marine Corps option midshipmen 18 units of naval science courses, physical fitness test, and summer training cruises, each about four to six weeks long. Both Navy and Marine Corps option students must also pass a swimming test. The department also conducts a sail training program for all Navy midshipmen. All naval science courses are open to students who are not in the program but have an interest in the Navy/Marine Corps and related fields, such as engineering, navigation and naval operations, history, and management.

Undergraduate Study

Scholarship Program

The majority of naval science students attend the University on Navy/Marine Corps Scholarships which are awarded primarily on a four-year basis to high school seniors selected by a nationwide competition. A two-year upper division scholarship program is also available, with a similar selection process, to students who have not yet begun their junior year in college. Applications for both types of scholarships are due by December 1 and March 1, respectively, each year. In addition to tuition, fees, and uniforms, students receive subsistence pay of \$250 to \$400 per month and a book stipend. Scholarship students are obligated to serve on active duty for a minimum of four years following graduation and commissioning.

College Program (Nonscholarship)

Students attending the University who meet Navy/Marine Corps requirements but who do not have an NROTC Scholarship may enroll in the College Program during their freshman year. These students have the opportunity to compete for scholarships after the completion of one term of naval science courses. If they do not win a scholarship, or choose not to compete for one, they must compete for advanced standing prior to their junior year. A two-year College Program is also available to students who have not yet started their junior year. Students enter the two-year program with ad-

vanced standing after selection through national competition and completion of a six-week summer training period. Applications for the two-year program are due March 1 of the sophomore year. All College Program students receive uniforms, naval science textbooks and, once selected for advanced standing, monthly subsistence pay in their junior and senior years. College Program students serve on active duty for a minimum of three years following graduation and commissioning.

Marine Corps Option

Highly motivated NROTC students may request designation as Marine Corps option students and may also pursue any UCLA academic degree. The final summer cruise involves intensive Marine training. Marine Corps option students also participate, on a limited basis, in field training exercises during the academic year.

Naval Science Minor

The Naval Science minor is designed for students who wish to augment the major they are completing in another departmental program. Naval science courses are open to all students with an interest in history, national security, foreign policy, organizational leadership, management, ethics, and the military sciences.

To enter the minor, students must have an overall grade-point average of 2.0 or better. For further information, contact Donna Tenerelli at (310) 825-9075.

Required Lower Division Courses (10 units):
Naval Science 1B, 20A, 20B.

Required Upper Division Courses (20 units):
Naval Science 101A, 101B, 102B, 103, 104.

Each minor course must be taken for a letter grade, with a grade-point average of 2.5 or better in each. Successful completion of the minor is indicated on the transcript and diploma.

Naval Science

Lower Division Courses

A. Naval Science Laboratory. (No credit) Laboratory, one hour. Requisite: course 102C. Limited to Naval Science ROTC midshipmen. Designed to cover service-specific administrative processes that are requisite knowledge for newly commissioned Navy and Marine Corps officers. No grading.

Z. Leadership Laboratory. (No credit) Laboratory, to be arranged. Mandatory for and limited to Naval Science ROTC midshipmen. Provides midshipmen with general military training and practical command and staff leadership experiences through classroom instruction and performance of various tasks and interactive processes within framework of organized midshipmen-run military unit, with oversight by active-duty military staff. As integral part of naval science curriculum, provides professional experiences designed to develop leadership potential and orientation for active duty. No grading.

1A. Introduction to Naval Science. (3) Lecture, three hours. Introduction to organization of Naval Service, various components of Navy, career opportunities, shipboard damage control, fire fighting, Naval and Marine Corps operations, and some customs and traditions of Naval Service. Letter grading.

1B. Naval Ship Systems I. (4) Lecture, four hours. Introduction to naval engineering, with emphasis on steam, nuclear, diesel, and gas turbine propulsion systems and their associated auxiliary components. Basic thermodynamic theory, electrical theory, stability, and buoyancy. P/NP or letter grading.

20A. Naval Ship Systems II. (4) Study of naval weapon systems, with emphasis on infrared, radar, and sonar principles. Target designation and acquisition, methods of solving fire control problem, target detection systems. Analysis of transfer and feedback functions inherent in weapon systems.

20B. Seapower and Maritime Affairs. (3) Lecture, three hours. Conceptual study of seapower, with emphasis on historical development of naval and commercial power. Seapower examined in relation to economic, political, and cultural strengths, with focus on current abilities of specific nations to use oceans to attain national objectives. P/NP or letter grading.

Upper Division Courses

101A. Navigation I. (4) Study of principles of piloting, celestial, and electronic navigation employed in determining a ship's position at sea. Celestial and electronic theory, mathematical analysis, sextant sights, and use of navigational aids.

101B. Naval Operations and Seamanship. (4) Lecture, four hours. Requisite: course 101A. Study of rules of road, shiphandling, and basic concepts of multiple ship formations and maneuvering. In-depth analysis of problems associated with operations on high seas and inland waters applying to civil and U.S. Naval craft. Letter grading.

102B. Naval Leadership and Management I. (4) Examination of current and classical leadership and management theories, with emphasis on their application to junior military officer's role as a leader/manager. Topics include managerial functions, performance appraisal, motivation theories, group dynamics, leadership theories, and communication.

102C. Leadership and Ethics. (2) Lecture, two hours. Requisite for Naval Science ROTC midshipmen: course 102B. Capstone course that examines principles of leadership and ethics relevant to military leaders through study and interactive discussion of classical and contemporary source documents and case studies. Letter grading.

103. Evolution of Warfare. (4) Study of evolution of warfare, including historical and comparative consideration of influence that leadership, political, economic, and sociological and technological development factors have had on warfare and influence they continue to exert in age of limited warfare.

104. Expeditionary Military Operations. (4) Study of historical use of expeditionary military operations, with particular emphasis on doctrine, tactics, and equipment used. Examination of topics through study of political and military objectives by focusing on historical examples, including Marathon, Gallipoli, World War II, Korea, Beirut, and Grenada. Examination of contemporary doctrine through study of recent operations.

197. Individual Studies in Naval Science. (1 to 4) Tutorial, four hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

SCANDINAVIAN SECTION

College of Letters and Science

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Professors

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Timothy R. Tangherlini, Ph.D.

Professors Emeriti

James R. Massengale, Ph.D.
Mary Kay Norseng, Ph.D.

Assistant Professors

Arne O. Lunde, Ph.D.
Kendra J. Willson, Ph.D., *in Residence*

Adjunct Assistant Professor

Zoe Patrice Borovsky, Ph.D.

Scope and Objectives

Scandinavia consists of five Northern European countries: Denmark, Finland, Iceland, Norway, and Sweden. These countries form a geographic bridge between the American and European continents and a political bridge between Western and Eastern Europe. For all students of literature, language, the arts, and the social and physical sciences, Scandinavia is of particular interest.

The modern Scandinavian program educates students about Scandinavia through the study of its languages and literatures. The Scandinavian Section offers both undergraduate and graduate degrees in the languages and literatures of Denmark, Norway, and Sweden. Danish, Norwegian, and Swedish are mutually understandable languages, giving the student of one access to the literatures and cultures of the other two. Both undergraduate and graduate majors are expected to concentrate on one Scandinavian language, though they study the literatures of the other language areas.

Undergraduate Study

Undergraduate Courses

No credit is allowed for completing a less advanced course after successful completion of a more advanced course in Danish, Norwegian, and Swedish grammar and/or composition. Students with demonstrated preparation may be permitted a more advanced program by the section or may be transferred to a more advanced course with consent of the instructor.

Native speakers of Norwegian, Swedish, and Danish may not enroll in any language course (including courses 105, 106, 107) in the Scandinavian Section except by petition in writing to the section. Non-Scandinavian students with knowledge of one of these Scandinavian lan-

guages may not take courses in the others except by petition in writing. Petitions must include a description of the student's linguistic background and the reason for wanting to take the language course in question.

Scandinavian Languages and Cultures B.A.

Preparation for the Major

Required: Scandinavian 1, 2, 3, 4, and 5, or 11, 12, 13, 14, and 15, or 21, 22, 23, 24, and 25, or equivalent.

Transfer Students

Transfer applicants to the Scandinavian Languages major with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of either Swedish, Norwegian, or Danish.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Scandinavian 105 or 106 or 107; 10 courses from the following five tracks, with at least one course in each track: (1) *early Nordic literatures and cultures*—Scandinavian C131, 132A, 132B, C133A, C137, 138, (2) *theory, genres, and authors*—Scandinavian C141A, 141C, 142A, 143C, CM144A, C145A, C145B, C146A, 147A, C147B, (3) *literary periods*—Scandinavian 152, 155, 156, 157, (4) *Scandinavian cinema*—Scandinavian 161, 163A, 166A, 166C, (5) *cultural studies*—Scandinavian C171, C174A, 174B, C175; and three Scandinavian 187FL courses, taken in conjunction with any upper division course applied toward the major.

As an option, four upper division courses in a related field may be taken if approved in advance by the undergraduate adviser. In general, the courses must include significant content related to the Nordic region. It is recommended that students who plan to do graduate work in Scandinavian take German 1 through 6.

Scandinavian Minor

To enter the Scandinavian minor, students must have an overall grade-point average of 2.0 or better.

Required Courses (28 units): Any seven Scandinavian courses, two of which may be lower division courses selected from Scandinavian 1 through 50.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate

Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degree

The Scandinavian Section offers the M.A. degree in Scandinavian.

Scandinavian

Lower Division Courses

1. **Elementary Swedish. (4)** Discussion, four hours. P/NP or letter grading.
2. **Elementary Swedish. (4)** Discussion, four hours. Enforced requisite: course 1. P/NP or letter grading.
3. **Elementary Swedish. (4)** Discussion, four hours. Enforced requisite: course 2. P/NP or letter grading.
4. **Intermediate Swedish. (4)** Discussion, four hours. Enforced requisite: course 3. P/NP or letter grading.
5. **Intermediate Swedish. (4)** Discussion, four hours. Enforced requisite: course 4. P/NP or letter grading.
8. **Elementary Swedish: Intensive. (12)** Lecture, 15 hours; laboratory, five hours. Intensive basic course in Swedish equivalent to courses 1, 2, and 3. Offered in summer only. P/NP or letter grading.
11. **Elementary Norwegian. (4)** Discussion, four hours. P/NP or letter grading.
12. **Elementary Norwegian. (4)** Discussion, four hours. Enforced requisite: course 11. P/NP or letter grading.
13. **Elementary Norwegian. (4)** Discussion, four hours. Enforced requisite: course 12. P/NP or letter grading.
14. **Intermediate Norwegian. (4)** Discussion, four hours. Enforced requisite: course 13. P/NP or letter grading.
15. **Intermediate Norwegian. (4)** Discussion, four hours. Enforced requisite: course 14. P/NP or letter grading.
21. **Elementary Danish. (4)** Discussion, four hours. P/NP or letter grading.
22. **Elementary Danish. (4)** Discussion, four hours. Enforced requisite: course 21. P/NP or letter grading.
23. **Elementary Danish. (4)** Discussion, four hours. Enforced requisite: course 22. P/NP or letter grading.
24. **Intermediate Danish. (4)** Discussion, four hours. Enforced requisite: course 23. P/NP or letter grading.
25. **Intermediate Danish. (4)** Discussion, four hours. Enforced requisite: course 24. P/NP or letter grading.
28. **Elementary Finnish. (4)** (Formerly numbered 130.) Lecture, three hours. Introduction to standard language of Finland. Practice in grammar, listening, speaking, reading, and writing. P/NP or letter grading.
29. **Intermediate Finnish. (4)** (Formerly numbered 131.) Lecture, three hours. Requisite: course 28. Introduction to standard language of Finland. Practice in grammar, listening, speaking, reading, and writing. P/NP or letter grading.
31. **Modern Icelandic. (4)** (Formerly numbered Old Norse Studies 153.) Lecture, three hours. Grammar, readings, and conversation. P/NP or letter grading.
40. **Heroic Journey in Northern Myth, Legend, and Epic. (4)** (Formerly numbered Old Norse Studies 40.) Lecture, three hours. All readings in English. Comparison of journeys of heroes. Readings in mythology, legend, folktale, and epic, including *Nibelungenlied*, *Volsunga saga*, *Eddas*, and *Beowulf*. Cultural and historic backgrounds to texts. P/NP or letter grading.
50. **Introduction to Scandinavian Literatures and Cultures. (5)** Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course 50W. Designed for students in general and for those wishing to prepare for more advanced and specialized studies in Scandinavian literature and culture.

Selected works from literatures of Denmark, Norway, Sweden, Iceland, and Finland, ranging from myth, national epic, saga, and folktale through modern novel, poem, play, short story, and film, read in English and critically discussed. P/NP or letter grading.

50W. Introduction to Scandinavian Literatures and Cultures. (5) Lecture, three hours; discussion, one hour. Enforced prerequisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 50. Designed for students in general and for those wishing to prepare for more advanced and specialized studies in Scandinavian literature and culture. Selected works from literatures of Denmark, Norway, Sweden, Iceland, and Finland, ranging from myth, national epic, saga, and folktale through modern novel, poem, play, short story, and film, read in English and critically discussed. Satisfies Writing II requirement. Letter grading.

Upper Division Courses

105. Advanced Swedish. (4) Discussion, three hours. Requisite: course 5. Readings, composition, and conversation in Swedish. May be repeated once for credit. P/NP or letter grading.

106. Advanced Norwegian. (4) (Formerly numbered 110.) Lecture, three hours. Requisite: course 15. Readings, composition, and conversation in Norwegian. May be repeated once for credit. P/NP or letter grading.

107. Advanced Danish. (4) (Formerly numbered 115.) Lecture, three hours. Requisite: course 25. Readings, composition, and conversation in Danish. May be repeated once for credit. P/NP or letter grading.

109. Advanced Finnish. (4) (Formerly numbered 132.) Lecture, three hours. Requisite: course 29. Grammatical exercises, conversation, reading, and analysis of simple texts. P/NP or letter grading.

C131. Introduction to Viking Age. (4) (Formerly numbered Old Norse Studies C131.) Lecture, three hours. History, society, and culture of early Scandinavians. All texts in English, including readings in Old Norse sagas and *Eddas*. Concurrently scheduled with course C231. Letter grading.

132A. Elementary Old Norse. (4) (Formerly numbered Old Norse Studies 132A.) Lecture, three hours. Introduction to grammar and pronunciation of Old Norse. Selected readings from sagas and *Prose Edda*. P/NP or letter grading.

132B. Intermediate Old Norse. (4) (Formerly numbered Old Norse Studies 132B.) Lecture, three hours. Requisite: course 132A. Continued grammar, pronunciation, and readings from *Eddas* and sagas of Icelanders, Norwegian kings, and legendary heroes. P/NP or letter grading.

132C. Advanced Old Norse. (4) Lecture, three hours. Enforced prerequisite: course 132B. Readings from variety of Old Norse-Icelandic texts. Continuation of development of translation skills, as well as familiarity with Old Norse-Icelandic texts and philological, linguistic, literary, and cultural issues surrounding their interpretation. P/NP or letter grading.

C133A. Saga. (4) (Formerly numbered Old Norse Studies C133A.) Seminar, three hours. Sagas are largest extant medieval prose literature. Texts in English, with selections from different types of Icelandic sagas. Consideration of history and society that produced these narratives. Concurrently scheduled with course C233A. Letter grading.

C137. Old Norse Literature and Society. (4) (Formerly numbered Old Norse Studies C145.) Seminar, three hours. Critical issues in medieval Scandinavian studies. May be repeated for credit. Concurrently scheduled with course C237. Letter grading.

138. Vikings. (5) (Formerly numbered Old Norse Studies 135.) Lecture, three hours; discussion, one hour. Survey of history, anthropology, and archaeology of Viking Age society. Readings draw on medieval sagas as well as secondary material, focus on impact of Vikings on northern Europe, and consider ways in which European and Scandinavian societies evolved in response to Viking incursions. P/NP or letter grading.

C141A. Theory of Scandinavian Novel. (4) (Formerly numbered C182.) Seminar, three hours. Analysis of predominant structures of Scandinavian novel from its 18th-century beginnings through its rise in 19th century and its 20th-century evolution. Discussion of application of contemporary critical theories to novels. May be concurrently scheduled with course C241A. P/NP or letter grading.

141B. Nordic Poetry. (4) Seminar, three hours. Readings in English translation. Survey of Nordic poetry from Middle Ages to present, including *Poetic Edda* of 13th-century Iceland, Scandinavian ballad tradition, some folk poetry from Finland's national epic *Kalevala*, and modern lyric. Reading of essays on translating poetry and consideration of particular problems poetry presents for translators, as well as what is lost and/or gained in translation. Study of poetry within following contexts: role(s) poetry has served in Nordic societies from 13th century to present day; Nordic poets' influences from and contributions to European literary movements; and special status of poetry in preserving small national languages and literatures, as indicated by financial support from Nordic states and publishers of contemporary poets and their poetry. P/NP or letter grading.

141C. Short Story in Scandinavia. (4) Seminar, three hours. Exploration of range of classic short story and novella texts from Scandinavian literary canon, with stories by authors such as Hans Christian Andersen, Jens Peter Jacobsen, Alexander Kielland, Amalie Skram, Sigbjørn Obstfelder, Knut Hamsun, Isak Dinesen, and Rubén Palma. Examination of author's lives and oeuvres, larger Nordic/European literary movements of 19th and 20th centuries, and tropes and conventions of short stories themselves. P/NP or letter grading.

142A. Introduction to Nordic Theater and Drama. (4) Lecture, three hours. Examination of artistic legacy of Henrik Ibsen and August Strindberg in context of emergence of modern Nordic theater and drama as whole, as well as important contributions of their contemporaries and successors. Readings include plays, letters, speeches, and memoirs by Ludvig Holberg, Henrik Ibsen, August Strindberg, Pär Lagerkvist, Kjeld Abell, Eeva-Liisa Manner, Hrafnhildur Hagalín Gudmundsdóttir, and Jonas Hassen Khemiri. P/NP or letter grading.

143C. Scandinavian Crime Literature. (4) (Formerly numbered 179.) Seminar, three hours. Introduction to background of crime fiction and its relation to Scandinavia. P/NP or letter grading.

CM144A. Voices of Women in Nordic Literature. (4) (Formerly numbered CM186.) (Same as Women's Studies M186.) Seminar, three hours. Requisite: course 5 or 15 or 25. Knowledge of Scandinavian languages not required for nonmajors. Readings and discussion of writings by Scandinavian women writers analyzed in historical, theoretical, sociological, critical, and comparative contexts. May be concurrently scheduled with course C244A. P/NP or letter grading.

C145A. Henrik Ibsen. (4) (Formerly numbered C144.) Seminar, three hours. Readings and discussion of selected plays by Henrik Ibsen. May be concurrently scheduled with course C245A. P/NP or letter grading.

C145B. Knut Hamsun. (4) (Formerly numbered C147.) Seminar, three hours. Readings and discussion of selected works by Knut Hamsun and other 19th- and 20th-century Scandinavian writers who explored theme of nature as modern idyll. May be concurrently scheduled with course C245B. P/NP or letter grading.

C146A. August Strindberg. (4) (Formerly numbered C145.) Seminar, three hours. August Strindberg's portrayals of marital conflict reflected and shaped literary representation of so-called battle of sexes. His work, as well as its literary transformations, placed into Scandinavian, European, and feminist context. May be concurrently scheduled with course C246A. P/NP or letter grading.

147A. Hans Christian Andersen. (4) (Formerly numbered 184.) Lecture, two hours; discussion, one hour. Study of works of Hans Christian Andersen, Danish novelist, dramatist, and writer of tales, includ-

ing consideration of his literary background and of his times. Analysis of his works in terms of their structure, style, and meaning. P/NP or letter grading.

C147B. Søren Kierkegaard. (4) (Formerly numbered C146.) Seminar, three hours. Readings and discussion of selected works by Søren Kierkegaard and other existentialist writers. May be concurrently scheduled with course C247B. P/NP or letter grading.

148A. Halldór Laxness. (4) Lecture, three hours. Reading and discussion of works in English translation by Icelandic Nobel laureate Halldór Guðmundsson Laxness (1902 to 1998). P/NP or letter grading.

152. Backgrounds of Scandinavian Literature. (4) (Formerly numbered 141.) Seminar, three hours. Readings and discussion of representative texts selected from literature of medieval, Renaissance, baroque, and Enlightenment periods. P/NP or letter grading.

152FL. Backgrounds in Scandinavian Literature. (2) (Formerly numbered 141FL.) Seminar, two hours. Requisite: course 5 or 15 or 25. Enforced corequisite: course 152. Additional work in Nordic languages to augment work assigned in course 152, including reading, writing, and other exercises in Danish, Icelandic, Norwegian, or Swedish. P/NP or letter grading.

155. Modern Breakthrough. (4) (Formerly numbered 142.) Seminar, three hours. Readings and discussion of selected works from Romantic, realistic, and post-Romantic literature of Scandinavia in 19th century. P/NP or letter grading.

156. Scandinavian Literature of 20th Century. (4) (Formerly numbered 143.) Seminar, three hours. Readings and discussion of selected works of modern Scandinavian literature from beginning of century to present. P/NP or letter grading.

156FL. 20th-Century Scandinavian Literature. (2) (Formerly numbered 143FL.) Seminar, two hours. Requisite: course 5 or 15 or 25. Enforced corequisite: course 156. Additional work in Nordic languages to augment work assigned in course 156, including reading, writing, and other exercises in Danish, Icelandic, Norwegian, or Swedish. P/NP or letter grading.

157. Contemporary Nordic Literature. (4) (Formerly numbered 181.) Seminar, three hours. Reading and analysis of selected texts by major 20th-century Swedish authors. P/NP or letter grading.

161. Introduction to Nordic Cinema. (4) (Formerly numbered 187.) Seminar, three hours. Designed for students in general and for those preparing for more advanced studies in Scandinavian literature and culture. Viewing and discussion of films by Ingmar Bergman and other Scandinavians. P/NP or letter grading.

163A. Introduction to Danish Cinema. (4) Seminar, three hours. Introduction to history of cinema in Denmark, as well as to some fundamental concepts in study of film. Deliberately broad and historically centered approach to development of cinema in Denmark rather than focus on films of particular directors or topics. Theoretical readings from important critics, including Kracauer, Bazin, Metz, and Chatman, along with several directed exercises, to develop vocabulary and critical method for discussing films in general and Danish cinema in particular. Other readings include selections from Hjort, Sandberg, Tangherlini, and other Scandinavian theorists. P/NP or letter grading.

C163B. Introduction to Swedish Cinema. (4) Lecture, three hours. Introduction to and exploration of history of Swedish cinema from silent era to present. Filmmakers include auteurs in international canon, such as Victor Sjöström, Mauritz Stiller, and Ingmar Bergman, as well as other key Swedish filmmakers such as Gustaf Molander, Alf Sjöberg, Mai Zetterling, Vilgot Sjöman, Jan Troell, Lukas Moodysson, and Josef Fares. Development of Scandinavian high art cinema and popular genres such as rural romanticism, melodrama, sex, crime, and horror. All films have English subtitles. Concurrently scheduled with course C263B. P/NP or letter grading.

C163C. Introduction to Norwegian Cinema. (4) Seminar, three hours. Introduction to and exploration of history of Norwegian cinema from silent era to present. Filmmakers include Tancred Ibsen, Arne Skouen, Edith Carlmar, Nils Gaup, Erik Skjoldbjærg,

Bent Hamer, Khalid Hussain, and Petter Næss. Particular focus on popular genres such as war films, horror, noir, romantic comedies, and documentaries. Concurrently scheduled with course C263C. P/NP or letter grading.

166A. Ingmar Bergman. (4) Seminar, three hours. Exploration of Ingmar Bergman's development as film artist through various periods, spanning mid-1940s and late 1970s. Contextualization of work of this most personal of filmmakers within multiple frameworks of postwar Swedish film industry, international art cinema movement, and issues of auteur filmmaking. Course readings and viewing of 10 Bergman films. All films have English subtitles. P/NP or letter grading.

166C. Carl Dreyer. (4) Seminar, three hours. Carl Theodor Dreyer (1889 to 1968) is not only one of great masters of Nordic cinema, but of world cinema as well. Focus on films that Dreyer made during near half century between 1919 and 1964. Contextualization of silent and sound works of this most personal of filmmakers within multiple frameworks: Danish national film industry, transnational European cinema, and issues of auteur filmmaking. Writings by key Dreyer scholars such as David Bordwell, Ray Carney, Paul Schrader, Mark Sandberg, and others, as well as Dreyer's own writings on cinema. All films have English intertitles or subtitles. P/NP or letter grading.

166FL. Ingmar Bergman. (2) Seminar, two hours. Prerequisite: course 5 or 15 or 25. Enforced corequisite: course 166A. Additional work in Danish, Norwegian, or Swedish to augment work assigned in course 166A, including reading, writing, and other exercises in Danish, Norwegian, or Swedish. P/NP or letter grading.

C171. Introduction to Scandinavian Folklore. (4) (Formerly numbered C178.) Seminar, three hours. Introduction to fairy tales and legends of Scandinavian tradition as well as to interpretive methodologies that strive to answer question "why do people tell stories that they tell?" Concurrently scheduled with course C271. Letter grading.

C174A. Minority Cultures in Scandinavia. (4) Seminar, three hours. Exploration of emergence of immigrant cultures in Nordic region. Beginning in 1960s, large numbers of people from Turkey, Italy, and Pakistan began immigrating to Nordic countries, followed in subsequent decades by immigrants and refugees from Vietnam, India, Iran, Iraq, Afghanistan, Cambodia, and countries throughout Africa. Cultural landscape previously marked by relatively high degree of cultural homogeneity now characterized by broad cultural diversity. Examination of emergence of new voices in Nordic cultural landscape in wide range of cultural expressive media, including literature, film, and visual and performing arts. Exploration of emergence of new forms of Nordic languages, such as well-documented phenomenon of Rinkeby Swedish. Concurrently scheduled with course C274A. P/NP or letter grading.

174B. Queer Scandinavia. (4) (Formerly numbered 177.) Seminar, three hours. Queer themes in Scandinavian literature, mainly from 19th and 20th centuries. Scandinavian countries have had more progressive view on homosexuality than most other countries, and Scandinavian writers portrayed homosexuality in explicit and radical ways as early as turn of 19th century. Introduction to key theoretical works within field of gay and lesbian studies and queer studies, as well as presentation of historical view of how homosexuality has been perceived in Western world over time. P/NP or letter grading.

C175. Introduction to Sami Language and Culture. (4) (Formerly numbered C136.) Lecture, three hours. Use of thematically arranged, structurally graduated readings, conversation topics, individual and group assignments, and journal writing to provide systematic overview of linguistic characteristics of Estonian language. At course end students should be able to communicate in Sami in variety of common social situations and should be equipped with necessary basic concepts to continue language acquisition and cultural studies in their social and professional milieu, interacting with native speakers, or taking formal courses at intermediate level. Concurrently scheduled with course C275. P/NP or letter grading.

C180. Literature and Scandinavian Society. (4) Seminar, three hours. Discussion of selected aspects of Scandinavian society based on readings of contemporary literature as well as historical and/or sociological material. May be repeated for credit (as determined by undergraduate adviser) with topic change. May be concurrently scheduled with course C280. P/NP or letter grading.

C185. Seminar: Scandinavian Literature. (4) Seminar, three hours. Selected topics in Scandinavian prose, poetry, and drama. May be repeated for credit with consent of instructor and undergraduate adviser. May be concurrently scheduled with course C265. P/NP or letter grading.

187FL. Special Studies: Readings in Scandinavian. (2) Seminar, two hours. Prerequisite: course 5 or 15 or 25. Students must be concurrently enrolled in affiliated main course. Additional work in Nordic languages (Danish, Icelandic, Norwegian, Swedish) to augment work assigned in main course, including reading, writing, and other exercises. May be repeated for credit. P/NP or letter grading.

197. Individual Studies in Scandinavian. (2 to 4) Tutorial, three hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

199. Directed Research in Scandinavian. (4) (Formerly numbered Old Norse Studies 199.) Tutorial, three hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

C231. Introduction to Viking Age. (4) (Formerly numbered Old Norse Studies C231.) Lecture, three hours. History, society, and culture of early Scandinavians. All texts in English, including readings in Old Norse sagas and *Eddas*. Concurrently scheduled with course C131. Graduate students do additional readings and write more extensive research papers. Letter grading.

C233A. Saga. (4) (Formerly numbered Old Norse Studies C233A.) Seminar, three hours. Sagas are largest extant medieval prose literature. Texts in English, with selections from different types of Icelandic sagas. Consideration of history and society that produced these narratives. Concurrently scheduled with course C133A. Graduate students do additional readings and write more extensive research papers. Letter grading.

233B. Advanced Old Norse Prose. (4) (Formerly numbered Old Norse Studies 221.) Lecture, three hours. Prerequisite: course 132B. Readings of major saga texts. Also, secondary sources that bear on specific issues in Old Norse literature and medieval Scandinavian history. S/U or letter grading.

234. Scandinavian Mythology. (4) (Formerly numbered Old Norse Studies 245A.) Seminar, three hours. Study of Northern myth and religion through close reading of Eddic texts and secondary sources. Letter grading.

235A. Advanced Old Norse Poetry. (4) (Formerly numbered Old Norse Studies 222.) Lecture, three hours. Prerequisite: course 132B. Readings of mythological and heroic poems from *Poetic Edda*. Secondary sources used where appropriate. S/U or letter grading.

C237. Old Norse Literature and Society. (4) (Formerly numbered Old Norse Studies C272.) Seminar, three hours. Critical issues in medieval Scandinavian studies. May be repeated for credit. Concurrently scheduled with course C137. Graduate students do additional readings and write more extensive research papers. Letter grading.

C241A. Theory of Scandinavian Novel. (4) (Formerly numbered C264.) Seminar, three hours. Preparation: advanced knowledge of one Scandinavian language. Analysis of predominant structures of Scandinavian novel from its 18th-century beginnings through its rise in 19th century and its 20th-century evolution.

Discussion of application of contemporary critical theories to novels. May be concurrently scheduled with course C141A. Graduate students may meet as group one additional hour each week and write research papers of greater length and depth. S/U or letter grading.

C244A. Voices of Women in Nordic Literature. (4) (Formerly numbered C266.) Seminar, three hours. Preparation: advanced knowledge of one Scandinavian language. Readings and discussion of writings by Scandinavian women writers analyzed in historical, theoretical, sociological, critical, and comparative contexts. May be concurrently scheduled with course CM144A. Graduate students may meet as group one additional hour each week and write research papers of greater length and depth. S/U or letter grading.

C245A. Henrik Ibsen. (4) (Formerly numbered C251.) Seminar, three hours. Preparation: advanced knowledge of one modern Scandinavian language. Readings and discussion of selected plays by Henrik Ibsen. May be concurrently scheduled with course C145A. Graduate students may meet as group one additional hour each week and write research papers of greater length and depth. S/U or letter grading.

C245B. Knut Hamsun. (4) (Formerly numbered C254.) Seminar, three hours. Preparation: advanced knowledge of one Scandinavian language. Readings and discussion of selected works by Knut Hamsun and other 19th- and 20th-century Scandinavian writers who explored theme of nature as modern idyll. May be concurrently scheduled with course C145B. Graduate students may meet as group one additional hour each week and write research papers of greater length and depth. S/U or letter grading.

C246A. August Strindberg. (4) (Formerly numbered C252.) Seminar, three hours. Preparation: advanced knowledge of one Scandinavian language. August Strindberg's portrayals of marital conflict reflected and shaped literary representation of so-called battle of sexes. His work, as well as its literary transformations, placed into Scandinavian, European, and feminist context. May be concurrently scheduled with course C146A. Graduate students may meet as group one additional hour each week and write research papers of greater length and depth. S/U or letter grading.

C247B. Søren Kierkegaard. (4) (Formerly numbered C253.) Seminar, three hours. Preparation: advanced knowledge of one modern Scandinavian language. Readings and discussion of selected works of Søren Kierkegaard and other existentialist writers. May be concurrently scheduled with course C147B. S/U or letter grading.

C263B. Introduction to Swedish Cinema. (4) Lecture, three hours. Introduction to and exploration of history of Swedish cinema from silent era to present. Filmmakers include auteurs in international canon, such as Victor Sjöström, Mauritz Stiller, and Ingmar Bergman, as well as other key Swedish filmmakers such as Gustaf Molander, Alf Sjöberg, Mai Zetterling, Vilgot Sjöman, Jan Troell, Lukas Moodysson, and Josef Fares. Development of Scandinavian high art cinema and popular genres such as rural romanticism, melodrama, sex, crime, and horror. All films have English subtitles. Concurrently scheduled with course C163B. S/U or letter grading.

C263C. Introduction to Norwegian Cinema. (4) Seminar, three hours. Introduction to and exploration of history of Norwegian cinema from silent era to present. Filmmakers include Tancred Ibsen, Arne Skouen, Edith Carlmar, Nils Gaup, Erik Skjoldbjærg, Bent Hamer, Khalid Hussain, and Petter Næss. Particular focus on popular genres such as war films, horror, noir, romantic comedies, and documentaries. Concurrently scheduled with course C163C. S/U or letter grading.

C265. Seminar: Scandinavian Literature. (4) Seminar, three hours. Preparation: reading knowledge of a Scandinavian language. Selected topics in Scandinavian prose, poetry, and drama. May be repeated for credit with consent of instructor and graduate adviser. May be concurrently scheduled with course C185. S/U or letter grading.

M270. Seminar: Literary Theory. (5) (Same as Comparative Literature M294, East Asian Languages M251, English M270, French M270, German M270, Italian M270, and Spanish M294.) Seminar, three hours. Advanced interdisciplinary seminar to explore philosophical, historical, and critical foundations of literary theory as well as current issues in literary and cultural studies. S/U or letter grading.

C271. Introduction to Scandinavian Folklore. (4) (Formerly numbered C267.) Seminar, three hours. Preparation: advanced knowledge of one modern Scandinavian language. Introduction to fairy tales and legends of Scandinavian tradition as well as to interpretive methodologies that strive to answer question "why do people tell stories that they tell?" Concurrently scheduled with course C171. Letter grading.

M271. Study of Oral Tradition: History and Methods. (4) (Same as English M205A.) Seminar, three hours. Exploration of scholarly and literary attempts to study, define, analyze, promote, and/or appropriate oral traditions, from Homer and ancient Greece to origins of vernacular literatures, European romantic (re)discovery of oral tradition, 20th-century heuristic models of oral composition, and modern-day electronic media and popular verbal genres, such as joking and rapping. S/U or letter grading.

M272. Collecting Oral Tradition. (4) (Same as English M205B.) Seminar, three hours. Description and evaluation of various modern approaches to collecting and documenting oral tradition as text, performance, and sociocultural event. Consideration of approaches ranging from written transcription and textualization to audio and video presentation. S/U or letter grading.

M273. Studies in Oral Traditional Genres. (4) (Same as English M205C.) Seminar, three hours. Exploration in depth of variety and history of, and scholarship on, a particular oral traditional genre (e.g., ballad, song, epic, proverb, riddle, folktale, legend) or a set of closely related oral traditional genres. S/U or letter grading.

C274A. Minority Cultures in Scandinavia. (4) Seminar, three hours. Exploration of emergence of immigrant cultures in Nordic region. Beginning in 1960s, large numbers of people from Turkey, Italy, and Pakistan began immigrating to Nordic countries, followed in subsequent decades by immigrants and refugees from Vietnam, India, Iran, Iraq, Afghanistan, Cambodia, and countries throughout Africa. Cultural landscape previously marked by relatively high degree of cultural homogeneity now characterized by broad cultural diversity. Examination of emergence of new voices in Nordic cultural landscape in wide range of cultural expressive media, including literature, film, and visual and performing arts. Exploration of emergence of new forms of Nordic languages, such as well-documented phenomenon of Rinkeby Swedish. Concurrently scheduled with course C174A. S/U or letter grading.

C275. Introduction to Sami Language and Culture. (4) (Formerly numbered C236.) Lecture, three hours. Use of thematically arranged, structurally graduated readings, conversation topics, individual and group assignments, and journal writing to provide systematic overview of linguistic characteristics of Estonian language. At course end students should be able to communicate in Sami in variety of common social situations and should be equipped with necessary basic concepts to continue language acquisition and cultural studies in their social and professional milieu, interacting with native speakers, or taking formal courses at intermediate level. Concurrently scheduled with course C175. S/U or letter grading.

C280. Literature and Scandinavian Society. (4) (Formerly numbered C263.) Seminar, three hours. Designed for graduate students. Discussion of selected aspects of Scandinavian society based on readings of contemporary literature as well as historical and/or sociological material. May be repeated for credit (as determined by graduate adviser) with topic change. May be concurrently scheduled with course C180. Graduate students may meet for extra seminar hours and write research papers of greater length and depth. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

596. Directed Individual Study or Research. (2 to 6) Tutorial, to be arranged with faculty member who directs the study or research. Limited to graduate Scandinavian students. Twelve units may be applied toward total course requirement, but only 4 units may be applied toward minimum graduate course requirement. May be repeated twice. S/U or letter grading.

597. Preparation for M.A. Comprehensive Examination or Ph.D. Qualifying Examinations. (4 to 8) Tutorial, to be arranged with faculty member who directs the study or research. May be repeated once. May not be applied toward M.A. minimum course requirements. S/U grading.

599. Research for and Preparation of Ph.D. Dissertation. (4) Tutorial, to be arranged with faculty member who directs the study or research. May be repeated. S/U grading.

SLAVIC LANGUAGES AND LITERATURES

College of Letters and Science

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David W. Macfadyen, Ph.D., *Chair*

Professors

Michael H. Heim, Ph.D.
Vyacheslav V. Ivanov, Ph.D.
Olga Kagan, Ph.D.
Emily R. Klenin, Ph.D.
Roman Koropeczkyj, Ph.D.
Gail D. Lenhoff, Ph.D.
David W. Macfadyen, Ph.D.
Aleksandr L. Ospovat, Ph.D.
Ronald W. Vroon, Ph.D.

Professors Emeriti

Henning Andersen, Ph.D.
Peter C. Hodgson, Jr., Ph.D.
Vladimir Markov, Ph.D.
Rochelle H. Stone, Ph.D.
Dean S. Worth, Ph.D.

Senior Lecturer S.O.E.

Edward Denzler, M.A., *Emeritus*

Lecturers

Melinda Borbely, M.A.
Marianna Chodorowska-Pilch, Ph.D.
Georgiana Galateanu, Ph.D.
Susan C. Kresin, Ph.D.
Ganna Kudyma, Ph.D.
Viktorija Lejko-Lacan, Ph.D.

Scope and Objectives

The Department of Slavic Languages and Literatures offers a wide array of courses in the languages and cultures of Russia and of central and eastern Europe. Instruction is offered in Czech, Hungarian, Polish, Romanian, Russian, Serbian/Croatian, and Ukrainian to provide the necessary linguistic skills to pursue

advanced work in the literature, culture, history, politics, and social structures of these areas. Students have the choice of several majors and minors and the opportunity to enhance their knowledge and skills through programs of study abroad.

The department offers two majors in Russian. The Russian Language and Literature major is designed to provide students with basic mastery of the Russian language and familiarity with the classics of Russian literature. Students typically begin to study Russian in their first year, but those contemplating a Russian major later in their academic program can fulfill the Russian language requirement by combining regular coursework with summer programs or with the University of California Education Abroad Program (EAP) in Moscow, which is open to students who have completed the equivalent of one or more years of study (level 1 on the American Council on Teaching of Foreign Languages—ACTFL—scale). Students interested in this program should consult the undergraduate adviser as early as possible.

The major in Russian Studies is designed for students who wish to complement mastery of the language with an array of courses on Russian history, politics, literature, and culture.

The major in Central and East European Languages and Cultures is designed to provide students with a mastery of two languages of central or eastern Europe and familiarity with the literature, as well as general background in the cultural, political, and social history of the Slavic peoples.

The graduate program provides advanced training in Slavic literatures and linguistics leading to the M.A. and Ph.D. degrees. The primary task of the department faculty is to develop and refine the critical and analytic skills of its students in preparation for productive careers in college teaching and research in the Slavic field. Alternative careers include language teaching, business, translation, interpreting, librarianship, and government service.

Undergraduate Study

The department offers three majors: (1) Central and East European Languages and Cultures, (2) Russian Language and Literature, and (3) Russian Studies. The equivalent of a major in Central and East European Languages and Cultures or Russian Language and Literature is normally required for admission to the department's graduate program and is used to determine the number of courses in Russian literature and/or linguistics that students majoring in Russian Studies are expected to make up in order to receive graduate degrees in the department. Students not majoring in Central and East European Languages and Cultures or Russian Language and Literature who intend to pursue graduate study in the department are strongly encouraged to take courses in Russian literature and linguistics during their undergraduate years to reduce the number of makeup courses required. Qualified seniors may also take graduate courses numbered be-

low 220 with consent of the instructor and the graduate and undergraduate advisers.

Central and East European Languages and Cultures B.A.

Preparation for the Major

Required: Central and East European Studies 91 or Slavic 90.

Transfer Students

Transfer applicants to the Central and East European Languages and Cultures major with 90 or more units must complete the following introductory course prior to admission to UCLA: one culture, history, or civilization course on one or more European nations.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: (1) One three-quarter introductory central and east European language sequence to be selected from Czech 101A, 101B, 101C, Hungarian 101A, 101B, 101C, Polish 101A, 101B, 101C, Romanian 101A, 101B, 101C, Serbian/Croatian 101A, 101B, 101C, or Ukrainian 101A, 101B, 101C; (2) one three-quarter language sequence to be selected from Czech 102A, 102B, 102C, Hungarian 102A, 102B, 102C, Polish 102A, 102B, 102C, Romanian 102A, 102B, 102C, Serbian/Croatian 102A, 102B, 102C, or Ukrainian 102A, 102B, 102C **OR** any three courses from Russian 100A, 100B, 100C, 101A, 101B, 101C, 102A, 102B, 102C, 103A, 103B, 103C, 123, 130A, 140A; (3) one three-quarter introductory language sequence of a second Slavic or central European language (15 units), or equivalent proficiency as determined through departmental testing, to be selected from Czech 101A, 101B, 101C, Hungarian 101A, 101B, 101C, Polish 101A, 101B, 101C, Romanian 101A, 101B, 101C, Serbian/Croatian 101A, 101B, 101C, or Ukrainian 101A, 101B, 101C; (4) three courses (12 units) from the following list (187 courses are 2 units each; no more than 8 units may be from the 187 series): Central and East European Studies 126, Czech 155, 187A through 187M, Ethnomusicology 161C, History 120A through 120D, Hungarian 121, 187A through 187M, Polish 152A, 152B, 152C, 187A through 187M, Romanian 152, 187A through 187M, Russian M118, 119, 120, 124C, 124D, 124G, C124N, 124T, Serbian/Croatian 154, 187A through 187M, Slavic 125, 179, Ukrainian 152, 187A through 187M.

During their senior year, students must also take Slavic 191T in which they complete a senior thesis.

Students may petition to substitute courses after consulting with the undergraduate adviser.

Each major course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better.

Russian Language and Literature B.A.

Preparation for the Major

Required: Russian 6 or 20 or equivalent proficiency, one course from 25, 25W, 90A, 90B, or 90BW.

Transfer Students

Transfer applicants to the Russian Language and Literature major with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of Russian and one Russian civilization course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Eleven courses (44 to 47 units), including (1) three Russian language courses selected from Russian 100A, 100B, 100C, 101A, 101B, 101C, 102A, 102B, 102C, 103A, 103B, 103C, 107A, 107B, 107C, 108 (consult the undergraduate adviser for appropriate placement); (2) five Russian literature and culture courses selected from 119, 120, 121, 129, 130A, 130B, 130C, 140A through 140D; and (3) two additional Russian language and/or literature courses selected from 102A, 102B, 102C, 103A, 103B, 103C, 107A, 107B, 107C, 108, M118, 122, 124C, 124D, 124G, C124N, 124P, 124T, M127.

During their senior year, students must also take Slavic 191T in which they complete a senior thesis.

Students may petition to substitute courses after consulting with the undergraduate adviser.

Each major course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better.

Russian Studies B.A.

Preparation for the Major

Required: Russian 6 or 20 or equivalent proficiency, one course from 25, 25W, 90A, 90B, or 90BW.

Transfer Students

Transfer applicants to the Russian Studies major with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of Russian and one Russian civilization course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Eleven courses (44 to 47 units), including (1) three Russian language courses selected from Russian 100A, 100B, 100C, 101A, 101B, 101C, 102A, 102B, 102C, 103A, 103B, 103C, 107A, 107B, 107C, 108 (consult the undergraduate adviser for appropriate placement); (2) three additional Russian language

and/or literature courses selected from 102A, 102B, 102C, 103A, 103B, 103C, 107A, 107B, 107C, 108, M118, 119, 120, 121, 122, 124C, 124D, 124G, C124N, 124P, 124T, 129; and (3) four related fields courses selected from History M127A through 127D, Honors Collegium 130, Political Science 128A, 128B, 156A.

During their senior year, students must also take Slavic 191T in which they complete a senior thesis.

Students may petition to substitute courses after consulting with the undergraduate adviser.

Each major course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better.

Honors Program

The honors program is designed for exceptional departmental majors who wish to complete a research project that culminates in an honors thesis. Juniors and seniors who have completed all university-level coursework, including all preparation courses and requirements for the major, with an overall grade-point average of 3.0 and a 3.5 GPA or better in the major courses, are eligible to apply. Students must have the sponsorship of an approved faculty adviser.

All honors students must enroll in Slavic 198A and 198B in two consecutive terms to conduct independent research and write the honors thesis. The results of the research should be presented as a conference paper at the annual Slavic Undergraduate Research Conference.

Central and East European Studies Minor

The Central and East European Studies minor is designed for students who wish to augment their major program of study in the College of Letters and Sciences with exposure to a variety of disciplines pertinent to the study of central and eastern Europe, including language, literature, history, political science, folklore, ethnomusicology, and women's studies.

To enter the minor students must be in good academic standing (2.0 minimum grade-point average) and file a petition with the department counselor in 322B Humanities Building, (310) 825-3856.

Required Lower Division Course (5 units): Central and East European Studies 91 or Slavic 90.

Required Upper Division Courses (28 to 31 units): (1) One three-quarter introductory central and east European language sequence to be selected from Czech 101A, 101B, 101C, Hungarian 101A, 101B, 101C, Polish 101A, 101B, 101C, Romanian 101A, 101B, 101C, Serbian/Croatian 101A, 101B, 101C, or Ukrainian 101A, 101B, 101C (students who demonstrate sufficient fluency in one of these languages through departmental testing are exempt from this three-course sequence and can replace it with a minimum of 12 units of language courses from item 3); (2) one course dealing directly with the target culture to be

selected from Central and East European Studies 126, Czech 155, Ethnomusicology 161C, History 120A through 120D, 130A, 130B, Polish 152A, 152B, 152C, Political Science 156B, 156D, Romanian 152, Russian 124G, Serbian/Croatian 154, Slavic 125, 179, Sociology M166, Ukrainian 152, Women's Studies M166, or 185; (3) 12 units of second-year or higher-level language courses to be selected from Czech 102A, 102B, 102C, 187A through 187M, Hungarian 102A, 102B, 102C, 187A through 187M, Polish 102A, 102B, 102C, 187A through 187M, Romanian 102A, 102B, 102C, 187A through 187M, Serbian/Croatian 102A, 102B, 102C, 187A through 187M, Ukrainian 102A, 102B, 102C, 187A through 187M (187 courses are 2 units each) OR three courses dealing directly with any central and east European culture to be selected from Central and East European Studies 126, Czech 155, Ethnomusicology 161C, History 120A through 120D, 130A, 130B, Hungarian 121, Polish 152A, 152B, 152C, Political Science 156B, 156D, Romanian 152, Russian 124G, Serbian/Croatian 154, Slavic 125, 179, Sociology M166, Ukrainian 152, Women's Studies M166, 185.

With approval of the undergraduate adviser, other related upper division courses may be applied toward the minor. No more than two courses (8 to 10 units) may be applied toward both this minor and a major or minor in another department or program.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Russian Language Minor

To enter the Russian Language minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Courses (9 to 17 units): Russian 6 or 20 or equivalent proficiency, one course from 25, 25W, 90A, 90B, or 90BW.

Required Upper Division Courses (20 to 23 units): Students select one of the following options: (1) Russian 101A, 101B, 101C and two additional Russian language or literature courses; (2) Russian 100A, 100B, 100C and two additional Russian language or literature courses; or (3) five Russian language and literature courses selected from 102A, 102B, 102C, 103A, 103B, 103C, 107A, 107B, 107C, 130A, 130B, 130C, 140A through 140D, with a minimum of three courses in Russian language.

Students may petition to substitute courses after consulting with the undergraduate adviser.

No more than two courses (8 to 10 units) may be applied toward both this minor and a major in another department or program. Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Russian Literature Minor

To enter the Russian Literature minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Courses (9 to 17 units): Russian 3 or 10 or equivalent proficiency, one course from 25, 25W, 30, 31, 32, 90A, 90B, or 90BW.

Required Upper Division Courses (20 units): Five Russian language and literature courses, including at least two from Russian M118, 119, 120, 130A, 130B, 130C, 140A through 140D.

Students may petition to substitute courses after consulting with the undergraduate adviser.

No more than two courses (8 to 10 units) may be applied toward both this minor and a major in another department or program. Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Russian Studies Minor

To enter the Russian Studies minor, students must have an overall grade-point average of 2.0 or better.

Required Lower Division Courses (9 to 17 units): Russian 3 or 10 or equivalent proficiency, one course from 25, 25W, 30, 31, 32, 90A, 90B, or 90BW.

Required Upper Division Courses (20 units): Five courses in Russia-related fields, with a minimum of three courses selected from History M127A through 127D, Honors Collegium 130, 164, Political Science 128A, 128B, 156A.

Students may petition to substitute courses after consulting with the undergraduate adviser.

No more than two courses (8 to 10 units) may be applied toward both this minor and a major in another department or program. Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Slavic Languages and Literatures offers Master of Arts (M.A.), Candidate in Philosophy (C.Phil.), and Doctor of Philosophy (Ph.D.) degrees in Slavic Languages and Literatures.

Bulgarian

Upper Division Courses

101A-101B-101C. Elementary Bulgarian. (5-5-5) Lecture, five hours. Course 101A is requisite to 101B, which is requisite to 101C. Basic courses in Bulgarian language. P/NP or letter grading.

Central and East European Studies

Lower Division Course

91. Culture and Society in Central and Eastern Europe. (5) Lecture, three hours; discussion, one hour. Interdisciplinary course to introduce students to main themes and concepts of central and east European studies, including historical background, nation states and ethnic groups, languages spoken in area, and culture and politics in communist and post-communist periods: religion, literature, mass media, music, art, and cinema. P/NP or letter grading.

Upper Division Course

126. Coldwar Central European Culture. (4) (Formerly numbered Slavic 126.) Lecture, three hours. Examination of coldwar Central European culture through prism of prose fiction, essays, and film from 1947 to 1992. Analysis of strategies of Polish, Czech, Hungarian, and East German writers as articulation of tensions, contradictions, and compromises informing communist rule in central and eastern Europe, with focus on culture as node of resistance as well as accommodation to communist system. P/NP or letter grading.

Czech

Upper Division Courses

101A-101B-101C. Introduction to Czech Language and Culture. (5-5-5) Lecture, five hours. Beginning Czech language courses with strong cultural component. P/NP or letter grading.

102A-102B-102C. Advanced Czech. (4-4-4) Lecture, three hours. Requisite: course 101C. P/NP or letter grading.

155. Survey of Czech Literature from Middle Ages to Present. (4) Lecture, three hours. Lectures and readings in English. P/NP or letter grading.

187A. Advanced Tutorial Instruction in Czech. (2) Tutorial, one hour; laboratory, one hour. Requisite: course 102C or Czech placement test. Recommended corequisite: course 187B. Tutorial and guided independent study of advanced Czech: advanced conversation, composition, vocabulary development, and review of selected grammar topics. P/NP or letter grading.

187B. Advanced Tutorial Instruction in Czech. (2) Tutorial, one hour; laboratory, one hour. Requisite or corequisite: course 187A. Tutorial and guided independent study of advanced Czech: advanced conversation, composition, vocabulary development, and review of selected grammar topics. P/NP or letter grading.

187C-187M. Advanced Tutorial Instruction in Czech. (2 each) Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Czech placement test. Tutorial and guided independent study of advanced Czech: advanced conversation, composition, vocabulary development, and review of selected grammar topics. P/NP or letter grading.

Hungarian

Upper Division Courses

101A-101B-101C. Elementary Hungarian. (4-4-4)

Discussion, three to four hours. Course 101A is requisite to 101B, which is requisite to 101C. Introduction to grammar; instruction in speaking, listening, reading, and writing. P/NP or letter grading.

102A-102B-102C. Advanced Hungarian. (4-4-4)

Lecture, three hours. Requisite: course 101C. Course 102A is requisite to 102B, which is requisite to 102C. P/NP or letter grading.

121. Survey of Hungarian Literature in Translation. (4) Lecture, three hours. Designed for students in general and comparative literature, as well as students interested in Finno-Ugric studies. Survey of main trends and contacts with other literatures. P/NP or letter grading.

187A. Advanced Tutorial Instruction in Hungarian. (2)

Tutorial, one hour; laboratory, one hour. Preparation: two years of Hungarian and/or Hungarian placement test. Recommended corequisite: course 187B. Tutorial and guided independent study of advanced Hungarian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. P/NP or letter grading.

187B. Advanced Tutorial Instruction in Hungarian. (2)

Tutorial, one hour; laboratory, one hour. Requisite or corequisite: course 187A. Tutorial and guided independent study of advanced Hungarian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. P/NP or letter grading.

187C-187M. Advanced Tutorial Instruction in Hungarian. (2 each)

Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Hungarian placement test. Tutorial and guided independent study of advanced Hungarian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. P/NP or letter grading.

197. Individual Studies in Hungarian. (2 to 4)

Tutorial, four hours. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Lithuanian

Upper Division Courses

101A-101B-101C. Elementary Lithuanian. (4-4-4)

Recitation, five hours. Course 101A is requisite to 101B, which is requisite to 101C. Basic courses in Lithuanian language. P/NP or letter grading.

102A-102B-102C. Advanced Lithuanian. (4-4-4)

Lecture, three hours. Requisite: course 101C. Course 102A is requisite to 102B, which is requisite to 102C. Review and reinforcement of grammar introduced in first year of study, expansion of vocabulary, further training in written and oral expression. P/NP or letter grading.

103. Intensive Elementary Lithuanian. (12)

Lecture, 19 hours. Intensive basic course in Lithuanian equivalent to one year of language study. Use of series of thematically arranged, structurally graduated readings, conversation exercises, and individual and group assignments, as well as journal writing, to provide systematic overview of linguistic characteristics of Lithuanian language. P/NP or letter grading.

Polish

Upper Division Courses

101A-101B-101C. Elementary Polish. (5-5-5)

Lecture, five hours. Course 101A is requisite to 101B, which is requisite to 101C. Basic courses in Polish language. P/NP or letter grading.

102A-102B-102C. Advanced Polish. (4-4-4)

Lecture, three hours. Requisite: course 101C. Course 102A is requisite to 102B, which is requisite to 102C. P/NP or letter grading.

152A-152B-152C. Survey of Polish Literature. (4-4-4)

Lecture, three hours. Lectures and readings in English. Letter grading. **152A.** From the Middle Ages to Neoclassicism; **152B.** Reimagining a Nation. Readings in 19th-century Polish literature and culture. **152C.** Dreaming, Mocking, and Writing "as if." Readings in modern Polish literature and culture.

187A. Advanced Tutorial Instruction in Polish. (2)

Tutorial, one hour; laboratory, one hour. Preparation: two years of Polish and/or Polish placement test. Recommended corequisite: course 187B. Tutorial and guided independent study of advanced Polish: advanced conversation, composition, vocabulary development, and review of selected grammar topics. P/NP or letter grading.

187B. Advanced Tutorial Instruction in Polish. (2)

Tutorial, one hour; laboratory, one hour. Requisite or corequisite: course 187A. Tutorial and guided independent study of advanced Polish: advanced conversation, composition, vocabulary development, and review of selected grammar topics. P/NP or letter grading.

187C-187M. Advanced Tutorial Instruction in Polish. (2 each)

Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Polish placement test. Tutorial and guided independent study of advanced Polish: advanced conversation, composition, vocabulary development, and review of selected grammar topics. P/NP or letter grading.

Graduate Course

280. Seminar: Polish Literature. (4) Seminar, three hours. Selected topics in Polish prose, poetry, and drama. May be repeated for credit with consent of instructor and graduate adviser.

Romanian

Lower Division Course

90. Introduction to Romanian Civilization. (4) Lecture, three hours. Introductory survey of social and cultural institutions of Romanian people and their historical background. P/NP or letter grading.

Upper Division Courses

101A-101B-101C. Elementary Romanian. (5-5-5)

Recitation, five hours. Basic courses in the Romanian language. P/NP or letter grading.

102A-102B-102C. Advanced Romanian. (5-5-5)

Lecture, five hours. Requisite: course 101C. Course 102A is requisite to 102B, which is requisite to 102C. Differences between oral and written discourse, expansion of students' general and academic vocabulary, and increase of range of grammatical structures for use in speaking and writing. Cultural information to be included in readings. Letter grading.

103. Intensive Elementary Romanian. (12)

Lecture, 19 hours. Intensive basic course in Romanian equivalent to courses 101A, 101B, 101C. P/NP or letter grading.

152. Survey of Romanian Literature. (4) Lecture, three hours. Lectures and readings in English. Survey of Romanian literature from Middle Ages to present. P/NP or letter grading.

187A. Advanced Tutorial Instruction in Romanian. (2)

Tutorial, one hour; laboratory, one hour. Requisite: course 102C or Romanian placement test. Recommended corequisite: course 187B. Tutorial and guided independent study of advanced Romanian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. P/NP or letter grading.

187B. Advanced Tutorial Instruction in Romanian. (2)

Tutorial, one hour; laboratory, one hour. Requisite or corequisite: course 187A. Tutorial and guided independent study of advanced Romanian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. P/NP or letter grading.

187C-187M. Advanced Tutorial Instruction in Romanian. (2 each)

Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Romanian placement test. Tutorial and guided independent study of advanced Romanian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. P/NP or letter grading.

Graduate Course

201. Romanian as a Romance Language. (4)

Lecture, three hours. Survey of structure and development of the Romanian language, with special emphasis on relationship of Romanian to other members of the Romance group.

Russian

Lower Division Courses

1. Elementary Russian. (5) Recitation, five hours; laboratory, one hour. P/NP or letter grading.

2. Elementary Russian. (5) Lecture, five hours; laboratory, one hour. Requisite: course 1. P/NP or letter grading.

3. Elementary Russian. (5) Lecture, five hours; laboratory, one hour. Requisite: course 2. P/NP or letter grading.

4. Intermediate Russian. (5) Lecture, five hours; laboratory, one hour. Requisite: course 3. P/NP or letter grading.

5. Intermediate Russian. (5) Lecture, five hours; laboratory, one hour. Requisite: course 4. P/NP or letter grading.

6. Intermediate Russian. (5) Lecture, five hours; laboratory, one hour. Requisite: course 5. P/NP or letter grading.

10. Intensive Elementary Russian. (12) Intensive basic course in the Russian language equivalent to courses 1, 2, and 3.

11A-11B-12A-12B-13A-13B. Self-Paced Program in Russian. (2 each) Basic courses in the Russian language; 2 to 4 units per term recommended. Each 2-unit course in sequence requires 30 minutes of laboratory session per week and 30 minutes of discussion session per week, plus individual instruction as required by the staff. Courses 11B and higher require completion of or simultaneous enrollment in all courses lower in sequence. P/NP or letter grading.

15A-15B. Accelerated Elementary Russian. (8-7) Recitation, five hours; laboratory, two hours. Material of first-year Russian course to be covered in two terms, with extensive use of language laboratory and the Russian Room. P/NP or letter grading.

20. Intensive Intermediate Russian. (12) Requisite: course 10 or one year of elementary Russian. Intermediate instruction in reading, writing, and speaking Russian equivalent to courses 4, 5, and 6.

25. Russian Novel in Translation. (5) Lecture, three hours; discussion, one hour. Not open for credit to students with credit for course 25W. Designed for nonmajors. Study of major works by the great 19th-century Russian novelists. P/NP or letter grading.

25W. Russian Novel in Translation. (5) Lecture, three hours; discussion, one hour. Enforced requisite: English Composition 3 or 3H or English as a Second

Language 36. Not open for credit to students with credit for course 25. Designed for nonmajors. Study of major works by the great 19th-century Russian novelists. Satisfies Writing II requirement. Letter grading.

30. Russian Literature and World Cinema. (4) Lecture, three hours; discussion, one hour. Examination of Russian literary masterpieces and their screen adaptations in various national cinematic traditions, with focus on problems of perception and misperception arising when literature is translated into cinema, and one national culture is viewed through the eyes of another. P/NP or letter grading.

31. History of Russian Cinema. (5) Lecture, three hours; discussion, one hour; film screening, three hours. Overview of Russian cinema from silent films of early 20th century to current developments, with focus on cinematic styles, genres, and directors. Particular attention to differences between visual and verbal storytelling. P/NP or letter grading.

32. Russia and Asia: Cultural Dialogues. (5) Lecture, three hours; discussion, one hour. Since end of Soviet Union, cultural and political flux within non-Christian lands neighboring Russia has increased dramatically. Given radical rejection of Russian heritage in most former Soviet territories, key distinctions in humanities have become unclear, including fundamental confusion between limits of Slavic and Near Eastern studies. Examination of relation of Russia's culture to its borders: Caucasus, Central Asia, China, and Japan. P/NP or letter grading.

90A. Introduction to Russian Civilization. (5) Lecture, three hours; computer laboratory, one hour. Introduction to Russian culture and society from earliest times to 1917. P/NP or letter grading.

90B. Russian Civilization in the 20th Century. (4) Lecture, three hours. Not open for credit to students with credit for course 90BW. Survey of literature, theater, cinema, television, press, music, and arts. Emphasis on contemporary period, with constant reference to Russian and early Soviet antecedents. P/NP or letter grading.

90BW. Russian Civilization in the 20th Century. (5) Lecture, three hours; discussion, one hour. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Not open for credit to students with credit for course 90B. Survey of literature, theater, cinema, television, press, music, and arts. Emphasis on contemporary period, with constant reference to Russian and early Soviet antecedents. Weekly discussions focus on varied approaches to writing addressing class topics. Five short papers required. Satisfies Writing II requirement. Letter grading.

Upper Division Courses

100A-100B-100C. Literacy in Russian. (4-4-4) Lecture, three hours. Course 100A is requisite to 100B, which is requisite to 100C. For students who speak Russian but have difficulty reading and writing. Focus on improving reading and writing skills, increasing vocabulary, and developing speaking skills required for academic discourse. P/NP or letter grading.

101A-101B-101C. Third-Year Russian. (5-5-5) Recitation, five hours. Requisite: course 6. Advanced grammar, reading, and conversation. P/NP or letter grading. **101A.** Russia and the West; **101B.** Soviet Russia; **101C.** Contemporary Russia.

102A-102B-102C. Topics in Advanced/Superior Russian. (4-4-4) Lecture, three hours. Requisite: course 101C. Discussion and composition, with emphasis on vocabulary development and review of selected grammar topics. Readings in fiction and nonfiction, films, and videos, and use of Internet. Each course may be taken independently and may be repeated for credit. P/NP or letter grading.

103A-103B-103C. Russian for Native and Near-Native Speakers. (4-4-4) Lecture, three hours. Course 103A is not requisite to 103B, which is not requisite to 103C. Improvement of oral and written language skills, emphasizing correct and diversified use of language and addressing individual grammatical difficulties. May be repeated for credit with topic and/or instructor change. P/NP or letter grading. **103A.** Rus-

sian National Identity. Readings in literature, philosophy, criticism, film. **103B.** Literature and Film. Film adaptations of Russian literature. Readings and screenings. **103C.** Special Topics.

107A-107B-107C. Russian for Social and Cultural Studies. (4-4-4) Lecture, three hours. Exploration of texts and media in social sciences and culture, with emphasis on press, television, and Internet. Each course may be taken independently and may be repeated for credit. P/NP or letter grading.

108. Russian for Business: Language and Culture. (4) Lecture, three hours. Discussion of economics and business in Russia, language of advertising, business and official correspondence. P/NP or letter grading.

M118. History of Russia, Origins to Rise of Muscovy. (4) (Same as History M127A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Kievan Russia and its culture, Appanage principalities and towns; Mongol invasion; unification of Russian state by Muscovy, Autocracy and its Servitors; serfdom. P/NP or letter grading.

119. Golden Age and Great Realists. (4) Lecture, three hours. Designed for juniors/seniors. Russian majors are advised to take this course in their sophomore year. Lectures and readings in English. Survey of 19th-century Russian literature (Pushkin, Gogol, Tolstoy, Dostoevsky, Chekhov) in its cultural, political, and social contexts. P/NP or letter grading.

120. Literature and Revolution. (4) Lecture, three hours. Designed for juniors/seniors. Russian majors are advised to take this course in their sophomore year. Lectures and readings in English. Major works of the 20th century (Belyi, Pasternak, Bulgakov, Solzhenitsyn, and others) from prerevolutionary avant-garde to the present. P/NP or letter grading.

121. Russian Pop Culture. (5) Lecture, three hours. Designed for juniors/seniors. Lectures and readings in English. Overview of Russian popular culture today, with examination of status of Russia's classic(al) traditions for artists and audiences working in modern Russia. Death of one tradition and attempts at creation of another lead away from written word into neighboring forms of expression, primarily visual. Consideration of battles of modern storytelling with cinema, television, animation, music videos, and Internet. Letter grading.

122. Siberia. (5) Lecture, three hours. Introductory survey in which current cultural and ecological issues are situated in their geographical and historical background, including analysis of Siberian human geography before first contact with European colonizers and development of modes of interaction among different cultural groups. Reading in English of selection of literary works by well-known 20th-century Siberian writers whose texts serve as locus for closer examination of Siberian regional literary culture and ecological network within which it exists. Letter grading.

123. Historical Commentary on Modern Russian. (4) Lecture, three hours. Requisite: course 101C. Historical explanation of phonological and morphological anomalies of modern Russian.

124C. Studies in Russian Literature: Chekhov. (4) Lecture, three hours. Lectures and readings in English. Survey of short stories, novellas, and major plays (*The Seagull*, *Uncle Vanya*, *Three Sisters*, *The Cherry Orchard*), with discussion of Russian and American productions. P/NP or letter grading.

124D. Studies in Russian Literature: Dostoevsky. (4) Lecture, three hours. Lectures and readings in English. Selections from early short fiction and philosophical writings followed by in-depth readings of one or two major novels such as *Crime and Punishment* or *The Brothers Karamazov*. P/NP or letter grading.

124G. Studies in Russian Literature: Gogol. (4) Lecture, three hours. Lectures and readings in English. Short stories, novel *Dead Souls*, and selected plays. P/NP or letter grading.

C124N. Studies in Russian Literature: Nabokov. (4) Lecture, three hours. Lectures and readings in English. Russian novelist (*The Gift*), American novelist (*Lolita*), autobiographer (*Speak Memory*), and critic. Concurrently scheduled with course C277. P/NP or letter grading.

124P. Studies in Russian Literature: Pushkin. (4) Lecture, three hours. Lectures and readings in English. Major works in all genres, including lyric poetry, narrative poems, plays, prose fiction, and selected letters. P/NP or letter grading.

124T. Studies in Russian Literature: Tolstoy. (4) Lecture, three hours. Lectures and readings in English. Early and late stories and novellas, excerpts from the diaries and one major novel such as *War and Peace* or *Anna Karenina*. P/NP or letter grading.

125. Russian Novel in Its European Setting. (4) Lecture, three hours. Designed for juniors/seniors. Lectures and readings in English. Emphasis on 19th- and 20th-century novelists.

126. Survey of Russian Drama. (4) Lecture, three hours. Lectures and readings in English. Introduction to representative selection of most important dramatic works in Russian literary tradition, including works from neoclassical, Romantic, realist, and futurist traditions. P/NP or letter grading.

M127. Women in Russian Literature. (4) (Same as Women's Studies M127.) Lecture, three hours. Designed for juniors/seniors. Lectures and readings in English. Introduction to "alternative tradition" of women's writings in Russia and the Soviet Union. Emphasis on images of women expressed in this tradition as compared with those found in works of contemporary male writers. P/NP or letter grading.

128. Russian Science Fiction. (4) Lecture, three hours. Readings in English. Introduction to Russian science fiction in the 20th century. Emphasis on function of science fiction in development of Russian culture before and after the October Revolution. P/NP or letter grading.

129. Animation and Music Video. (5) Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Lectures and readings in English. Humanities have recently passed through so-called visual turn: traditional emphases on language(s) in field have been reconsidered in light of society's increasingly visual workings. New attitude toward our own changing culture (i.e., toward its future) has equal value if applied retrospectively to multiple cultures of one erstwhile empire. In territory where many tongues or traditions needed to be ironed out, visual often plays special role in social cohesion. Because of past politics and today's profit-driven events, small fickle forms of visual narrative reflect change and social chance much better than ponderous grandeur of feature-length cinema. Letter grading.

130A-130B-130C. Russian Poetry. (4-4-4) Lecture, three hours. Preparation: third-year Russian recommended. Lectures and readings in Russian. May be repeated for credit with topic and/or instructor change. **130A.** Introduction to Analysis of Russian Poetry. Role of biography, cultural subtexts, rhetoric, and form in interpreting poetic texts. **130B.** Poetry of Russian Neoclassicism, Romanticism, and Realism. Major works of late 18th and 19th centuries in their historical and cultural contexts. **130C.** Russian Poetry in the 20th Century. Major poetic schools from early modernism (symbolism, futurism, acmeism) to contemporary avant-garde.

131. History of Russian Cinema. (4) Lecture, three hours. Overview of most popular art form in world's largest nation to show how cinema struggled under incipient capitalism in Russia, how moviemaking on other side of world departed from path marked out by Hollywood and London, how films operate as form of nationwide persuasion, relationship between word and image in those acts of persuasion, how even frightening dogma cannot escape importance of audience desire(s), different forms of social existence as refuge from both capitalism and communism, and

what values of world's biggest country are. Role of language in self-definition. Is selfhood verbal or visual matter? P/NP or letter grading.

140A-140D. Russian Prose Fiction. (4 each) Lecture, three hours. Preparation: third-year Russian recommended. Lectures and readings in Russian. May be repeated for credit with topic and/or instructor change. P/NP or letter grading. **140A.** Introduction to Analysis of Russian Narrative Prose. Close analysis of genre, narrative, and rhetorical strategies and interplay of literature, history, and culture. **140B.** Russian Romantic Prose. Karamzin, Pushkin, Gogol, and others. **140C.** Great Realists. Dostoevsky, Tolstoy, and others. **140D.** 20th-Century Modernism.

150. Russian Folk Literature. (4) Lecture, four hours. Lectures and readings in Russian. P/NP or letter grading.

C170. Russian Folklore. (3 to 5) Lecture, three hours. Lectures and readings in English. General introduction to Russian folklore, including survey of genres and related folkloric phenomena. Concurrently scheduled with course C240. P/NP or letter grading.

191. Variable Topics Research Seminars: Russian Literature. (4) Seminar, three hours. Requisite: course 6. Reading and discussion of selected authors; culminating seminar paper required. May be repeated for credit with topic and/or instructor change. P/NP or letter grading.

Graduate Courses

201A-201B-201C. Russian: Vocabulary, Pronunciation, Style. (4-4-4) Lecture, three hours. Requisite: course 102C. Conducted in Russian. Reading and analysis of texts with focus on vocabulary, pronunciation, and style, respectively, in three consecutive terms. S/U or letter grading.

202. Structure of Colloquial Russian. (4) Phonology, morphology, word formation, lexicon, and sentence and discourse structure of contemporary vernacular of Russian intelligentsia in context of linguistic variation. S/U or letter grading.

203. Practicum in Russian. (2) Requisite: course 201C. Two terms per year required of Ph.D. students. Reading of advanced texts; advanced composition, conversation; stylistics. May be repeated for credit. S/U grading.

204. Introduction to History of Russian Literary Language. (4) Lecture, three hours. Requisites: course 220A, Slavic 201. Required for M.A. (linguistics) and Ph.D. (literature). Evolution of literary Russian from the 11th to 20th centuries. Analysis of texts. S/U or letter grading.

210. Readings in Old Russian Texts. (4) Lecture, three hours. Requisite: Slavic 201. Readings in pre-modern Russian texts. May be repeated for credit.

211A. Literature of Medieval Rus'. (4) Lecture, three hours. Required for M.A. (literature). Survey of the literature from its beginning through the Kievan and Muscovite periods up to end of the 17th century.

211B. 18th-Century Russian Literature. (4) Lecture, three hours. Required for M.A. (literature). Lectures and readings in major and secondary writers. Analysis of related literary works.

212A-212B. 19th-Century Russian Literature. (4-4) Lecture, three hours. S/U or letter grading:

212A. Golden Age. Lecture, three hours. Required for M.A. (literature). Survey of major literary movements and schools following demise of neoclassicism: sentimental school, early and late Romanticism, and beginnings of natural school. Discussion of representative works of Karamzin, Zhukovsky, Batyushkov, Pushkin, Baratynsky, Lermontov, Gogol. S/U or letter grading.

212B. Age of Realism. Lecture, three hours. Required for M.A. (literature). Survey devoted to emergence of critical and psychological realism, beginning with early works of Turgenev, Goncharov, and Dostoevsky, moving to major novels of Tolstoy, Dostoevsky, and Satykov-Shchedrin, and concluding with works of the presymbolist period, especially short stories of Chekhov. S/U or letter grading.

213A. 20th-Century Russian Literature, 1890 to 1929. (4) Lecture, three hours. Required for M.A. (literature). Lectures and readings in major literary trends of modernist period, such as decadence, symbolism, futurism, acmeism, and ornamental school. Analysis of representative works by Blok, Belyj, Khlebnikov, Pasternak, Platonov, and others. S/U or letter grading.

213B. 20th-Century Russian Literature, 1930 to 1989. (4) Lecture, three hours. Required for M.A. (literature). Lectures and readings in major literary trends, including socialist realism, *The Thaw*, and second- and third-wave emigration. S/U or letter grading.

214. Contemporary Russian Literature. (4) Lecture, three hours. Requisites: courses 213A, 213B. Required for Ph.D. (literature). Close readings in selected texts of poetry and prose, metropolitan and emigre, of recent vintage. May be repeated for credit. Letter grading.

219. Movements and Genres in Russian Literature. (4) Lecture, three hours. Introduction to most important theoretical issues of Russian literature viewed in diachronic perspective. Letter grading.

220A-220B. Structure of Modern Russian. (4-4) Lecture, three hours. S/U or letter grading. **220A.** Required for M.A. (literature, linguistics). Survey of basic concepts and categories (graphics, phonetics, phonology, morphology, syntax, discourse). **220B.** Requisite: course 220A. Required for M.A. (linguistics). Selected problems and approaches in structure of Russian.

227. Linguistic Approaches to Russian Poetry. (4) Lecture, three hours. Introduction to use of linguistic methods in study of Russian poetic texts. May be repeated for credit. S/U or letter grading.

C240. Russian Folklore. (3 to 5) Lecture, three hours. Lectures and readings in English. General introduction to Russian folklore, including survey of genres and related folkloric phenomena. Concurrently scheduled with course C170. S/U or letter grading.

241. Topics in Russian Phonology. (4) Lecture, three hours. Requisite: course 220A. Selected topics in Russian phonology. May be repeated for credit with consent of instructor.

242. Topics in Russian Morphology. (4) Lecture, three hours. Requisite: course 220A. Selected topics in Russian inflection and derivation. May be repeated for credit with consent of instructor.

243. Topics in Historical Russian Grammar. (4) Lecture, three hours. Requisites: course 204, Slavic 221. Selected topics in Russian historical phonology, morphology, and syntax. May be repeated for credit with consent of instructor.

251. Topics in Literature of Medieval Rus'. (4) Lecture, three hours. Requisite: course 211A. Detailed discussion of particular writers, periods, or genres. May be repeated for credit with consent of instructor and graduate adviser.

261. Discourse Grammar of Russian. (2 or 4) Lecture, three hours. Analysis of phenomena of Contemporary Standard Russian controlled by discourse/pragmatic factors at all levels of linguistic structure from phonology to intersentential syntax. S/U or letter grading.

263. Russian Dialectology. (4) Lecture, three hours. Requisite: Slavic 221. Phonology and grammar of modern Great Russian dialects.

264. History of the Russian Literary Language. (4) Lecture, three hours. Requisites: course 204, Slavic 201. Evolution of literary Russian from the 11th to 20th century. Lectures and analysis of texts.

265. Topics in Russian Syntax. (4) Lecture, three hours. Requisite: course 220B. Traditional and generative approaches to Russian syntax. May be repeated for credit with consent of instructor.

270. Russian Poetics. (4) Lecture, three hours. Introduction to technical study of Russian poetics and versification, with attention to metrics, stanza forms, rhyme, and development of various verse types from the 18th into the 20th century.

C277. Studies in Russian Literature: Nabokov. (4) Lecture, three hours. Lectures and readings in English. Russian novelist (*The Gift*), American novelist (*Lolita*), autobiographer (*Speak Memory*), and critic. Concurrently scheduled with course C124N. S/U or letter grading.

290. Seminar: Russian Poetry. (4) Seminar, three hours. Recommended preparation: course 270. Detailed study of a single author, period, or work. May be repeated for credit with consent of instructor and graduate adviser.

291A. Seminar: Literature of Medieval Rus'. (4) Seminar, three hours. Requisite: course 211A. Selected topics from the 11th through the 17th century. May be repeated for credit with consent of instructor and graduate adviser.

291B. Seminar: 18th-Century Russian Literature. (4) Seminar, three hours. Requisite: course 211B. Selected authors and works from 18th-century poetry, prose, and drama. May be repeated for credit with consent of instructor and graduate adviser.

292. Seminar: 19th-Century Russian Literature. (4) Seminar, three hours. Requisites: courses 212A, 212B. Selected authors and works from 19th-century poetry, prose, and drama. May be repeated for credit with consent of instructor and graduate adviser.

293. Seminar: 20th-Century Russian Literature. (4) Seminar, three hours. Requisite: course 213A. Selected authors and works from 20th-century poetry, prose, and drama. May be repeated for credit with consent of instructor and graduate adviser. S/U or letter grading.

294. Seminar: Russian Literary Criticism. (4) Seminar, three hours. Requisites: courses 211B, 212A, 212B, 213A. Detailed study of specific school of literary criticism, single literary critic, or period in Russian literary history as reflected in literary criticism. Simultaneous or similar phenomena in literary criticism in West. May be repeated for credit with consent of instructor and graduate adviser. S/U or letter grading.

296. Seminar: History of Russian Culture. (4) Discussion, three hours. Reading and discussion on selected topics in history of Russian culture.

Serbian/Croatian

Upper Division Courses

101A-101B-101C. Elementary Serbian/Croatian. (5-5-5) Lecture, five hours. Course 101A is requisite to 101B, which is requisite to 101C. Basic courses in Serbian/Croatian. P/NP or letter grading.

102A-102B-102C. Advanced Serbian/Croatian. (4-4-4) Lecture, three hours. Requisite: course 101C. Course 102A is requisite to 102B, which is requisite to 102C. P/NP or letter grading.

103. Intensive Elementary Bosnian, Serbian, and Croatian. (12) Lecture, 19 hours. Intensive basic course in Bosnian, Serbian, and Croatian equivalent to courses 101A, 101B, 101C. P/NP or letter grading.

154. South Slavic Literature. (4) Lecture, three hours. Lectures and readings in English. Survey of South Slavic literature from Middle Ages to the present. P/NP or letter grading.

187A. Advanced Tutorial Instruction in Serbian/Croatian. (2) Tutorial, one hour; laboratory, one hour. Requisite: course 102C or Serbian/Croatian placement test. Recommended corequisite: course 187B. Tutorial and guided independent study of advanced Serbian/Croatian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. P/NP or letter grading.

187B. Advanced Tutorial Instruction in Serbian/Croatian. (2) Tutorial, one hour; laboratory, one hour. Requisite or corequisite: course 187A. Tutorial and guided independent study of advanced Serbian/Croatian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. P/NP or letter grading.

187C-187M. Advanced Tutorial Instruction in Serbian/Croatian. (2 each) Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Serbian/Croatian placement test. Tutorial and guided independent study of advanced Serbian/Croatian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. P/NP or letter grading.

Slavic

Lower Division Courses

M20. Visible Language: Study of Writing. (5) (Same as Asian M20, Indo-European Studies M20, Near Eastern Languages M20, and Southeast Asian M20.) Lecture, three hours; discussion, one hour. Consideration of concrete means of language representation in writing systems. Earliest representations of language known are those of Near East dating to end of 4th millennium B.C. While literate civilizations of Egypt, Indus Valley, China, and Mesoamerica left little evidence of corresponding earliest developments, their antiquity and, in case of China and Mesoamerica, their evident isolation mark these centers as loci of independent developments in writing. Basic characteristics of early scripts, assessment of modern alphabetic writing systems, and presentation of conceptual basis of semiotic language representation. Origins and development of early non-Western writing systems. How Greco-Roman alphabet arose in 1st millennium B.C. and how it compares to other modern writing systems. P/NP or letter grading.

40. Christianities East and West. (5) Lecture, three hours; discussion, one hour. Survey of three major historical branches of Christianity—Eastern and Oriental Orthodoxy, Roman Catholicism, and Protestantism, contrasting how history, dogma, culture, and community structures develop in the three traditions. P/NP or letter grading.

88. Sophomore Seminars: Literature and Culture. (4) Seminar, three hours. Variable topics course designed to explore themes and issues pertinent to Slavic literature and culture. Culminating project may be required. Consult *Schedule of Classes* or department for topics to be offered in specific term. Letter grading.

90. Introduction to Slavic Civilization. (5) Lecture, three hours; discussion, one hour. Introductory survey of social and cultural institutions of Slavic peoples and their historical background. P/NP or letter grading.

Upper Division Courses

103E. Intensive Elementary Estonian. (12) Lecture, 19 hours. Intensive basic course in Estonian equivalent to one year of language study. Use of series of thematically arranged, structurally graduated readings, conversation exercises, and individual and group assignments, as well as journal writing, to provide systematic overview of linguistic characteristics of Estonian language. P/NP or letter grading.

103L. Intensive Elementary Latvian. (12) Lecture, 19 hours. Intensive basic course in Latvian equivalent to one year of language study. Use of series of thematically arranged, structurally graduated readings, conversation exercises, and individual and group assignments, as well as journal writing, to provide systematic overview of linguistic characteristics of Latvian language. P/NP or letter grading.

CM114. Teaching and Learning of Heritage Languages. (4) (Same as Applied Linguistics CM128.) Lecture, three hours. Consideration of issues relevant to heritage language learners (HLL) and to heritage language (HL) instruction. Readings and discussion on such topics as definitions of HLLs and HLLs; linguistic, demographic, sociolinguistic, and sociocultural profile of HLLs, particularly HL groups most represented among UCLA students; institutional and instructor attitudes toward HLLs; impact of student motivation and expectations on HL curriculum and teaching approaches; similarities and differences between HLLs and foreign language learners (FLLs) regarding

teaching methods and materials; diagnostic testing and needs analysis; use of oral/aural proficiency as springboard for literacy instruction; optimization of instruction of mixed HL and FL classes. Action research component included. Concurrently scheduled with course CM214. P/NP or letter grading.

125. Interwar Central European Prose. (4) Lecture, three hours. Analysis of selected novels, stories, plays, and essays of representative authors of the 1920s and 1930s in translation. Special attention to relation between literature and historical and ethnic concerns. P/NP or letter grading.

179. Baltic and Slavic Folklore and Mythology. (4) Lecture, four hours. General course for students interested in folklore and mythology and for those interested in Indo-European mythic antiquities. P/NP or letter grading.

191T. Senior Thesis in Slavic Languages and Literatures. (4) Seminar, three hours. Limited to senior departmental majors. Planning and completion of senior thesis; students make verbal and written presentations. Normally taken in Spring Quarter of senior year. P/NP or letter grading.

197. Individual Studies in Slavic Languages and Literatures. (2 to 4) Tutorial, to be arranged. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. P/NP or letter grading.

198A-198B. Honors Research in Slavic Languages and Literatures. (4-4) Tutorial, three hours. Course 198A is requisite to 198B. Limited to junior/senior departmental honors program students. Development and completion of honors thesis under direct supervision of faculty member. May be repeated for credit. Individual contract required. Letter grading.

199. Directed Research in Slavic Languages and Literatures. (2 to 8) Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200A. Literary Proseminar. (4) Seminar, three hours. Required for M.A. (literature). Designed to prepare incoming graduate students for scholarly work by introducing them to resources (departmental, intramural, and extramural), methodologies, and techniques for analysis of literary materials and cultural studies. S/U grading.

200B. Proseminar: Slavic Linguistics. (4) Seminar, three hours. Required for M.A. (linguistics). Introduction to synchronic and diachronic study of Slavic languages and to research tools and methodologies associated with Slavic linguistics. S/U or letter grading.

201. Introduction to Old Church Slavic. (4) Lecture, three hours. Required for M.A. (linguistics, literature). Introduction to phonology and grammar; readings.

202. Introduction to Comparative Slavic Linguistics. (4) Lecture, three hours. Requisite: course 201. Required for M.A. (linguistics). Introduction to comparative phonology and grammar of Slavic languages.

211. Slavic Gender Linguistics. (2 or 4) Lecture, three hours. Examination of linguistic differences between male and female speech and of language used to refer to females and males. Course contributes to understanding of language, literature, sociolinguistics, gender issues, and Slavic culture in general. S/U or letter grading.

CM214. Teaching and Learning of Heritage Languages. (4) (Same as Applied Linguistics CM228.) Lecture, three hours. Consideration of issues relevant to heritage language learners (HLL) and to heritage language (HL) instruction. Readings and discussion on such topics as definitions of HLLs and HLLs; linguistic, demographic, sociolinguistic, and sociocultural profile of HLLs, particularly HL groups most represented among UCLA students; institutional and in-

structor attitudes toward HLLs; impact of student motivation and expectations on HL curriculum and teaching approaches; similarities and differences between HLLs and foreign language learners (FLLs) regarding teaching methods and materials; diagnostic testing and needs analysis; use of oral/aural proficiency as springboard for literacy instruction; optimization of instruction of mixed HL and FL classes. Action research component included. Concurrently scheduled with course CM114. S/U or letter grading.

221. Introduction to East Slavic Languages. (4) Lecture, three hours. Requisites: Russian 102A, 102B, and 102C, or Ukrainian 101A, 101B, and 101C. Recommended: course 202. Introduction to structure and history of East Slavic languages. Letter grading.

222. Introduction to West Slavic Languages. (4) Lecture, three hours. Requisite: course 202. Recommended: Czech 101A, 101B, and 101C, or Polish 101A, 101B, and 101C. Introduction to structure and history of West Slavic languages. S/U or letter grading.

223. Introduction to South Slavic Languages. (4) Lecture, three hours. Requisite: course 202. Recommended: Serbian/Croatian 101A, 101B, 101C. Introduction to structure and history of South Slavic languages. S/U or letter grading.

M229. Introduction to Slavic Bibliography. (2) (Same as Information Studies M229C.) Introduction to Slavic and East European bibliography for the humanities and social sciences. Emphasis to be determined by requirements and background of enrolled students. Topics include relevant library terminology and concepts; survey of languages and transliteration systems; acquisition of Slavic and East European library materials; Slavic and East European scholarship in the West; relevant reference sources, archival resources, and research methods; survey of online databases; compilation of bibliographies. S/U grading.

230A-230B-230C. Topics in Comparative Slavic Literature. (4-4-4) Lecture, three hours. Recommended preparation: upper division courses in Czech, Polish, Russian, and Yugoslav literatures. Two terms required for Ph.D. (literature). May be repeated for credit with consent of instructor and graduate adviser.

230A. Middle Ages through Baroque; 230B. Classicism to Romanticism; 230C. Realism to Modernism.

241A-241B. Advanced Old Church Slavic. (4-4) Lecture, three hours. Requisite: course 201. **241A.** Advanced Readings in Canonical Texts; **241B.** East, West, and South Slavic Recensions of Church Slavic.

242. Comparative Slavic Linguistics. (4) Lecture, three hours. Requisite: course 202. Selected topics in development of Common Slavic.

251. Introduction to Baltic Linguistics. (4) Lecture, three hours. Requisite: course 202. Introduction to Baltic linguistics, with special attention to relationship between Baltic and Slavic.

261. Slavic Paleography. (4) Lecture, three hours. Requisite: course 201. Introduction to Slavic paleography: inscriptions, birchbark letters, Glagolitic and Cyrillic texts.

281. Seminar: Slavic Linguistics. (4) Seminar, three hours. Selected topics in comparative and historical Slavic linguistics. May be repeated for credit with consent of instructor and graduate adviser.

282. Seminar: Structural Analysis. (4) Seminar, three hours. Selected topics. May be repeated for credit with consent of instructor and graduate adviser.

M299. Research Resources for European Studies. (2) (Same as French M299, German M299, Information Studies M299, Italian M299, and Spanish M299.) Lecture, two hours. Essentials of library research strategy and effective searching in key print and online resources for European and Russian studies. Through combination of lecture, online demonstration, and hands-on activities in and outside class, students understand how to efficiently use library and databases. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance

and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Teaching Slavic Languages at College Level. (4) Seminar, 90 minutes; discussion, 90 minutes. Designed for graduate students. Theory and practice of language teaching. Discussion of contemporary language teaching methodology as well as problems of pedagogical grammar. S/U grading.

596. Directed Individual Study or Research. (2 to 8) Tutorial, to be arranged. S/U grading.

597. Preparation for M.A. Comprehensive Examination or Ph.D. Qualifying Examinations. (2 to 8) Tutorial, to be arranged. S/U grading.

599. Research for Ph.D. Dissertation. (2 to 12) Tutorial, to be arranged. S/U grading.

Ukrainian

Upper Division Courses

101A-101B-101C. Elementary Ukrainian. (5-5-5) Recitation, five hours. Basic courses in the Ukrainian language. P/NP or letter grading.

102A-102B-102C. Advanced Ukrainian. (4-4-4) Lecture, three hours. Prerequisite: course 101C. Course 102A is requisite to 102B, which is requisite to 102C. Development of advanced listening, speaking, reading, and writing skills. P/NP or letter grading.

152. Ukrainian Literature. (4) Lecture, three hours. Lectures and readings in English. Survey of writers, literary trends, and issues in Ukrainian literature from the late 18th century to the present. Special attention to works of such major figures as Kotlyarevsky, Shevchenko, Franko, Ukrainka, and Tychna.

187A. Advanced Tutorial Instruction in Ukrainian. (2) Tutorial, one hour; laboratory, one hour. Preparation: two years of Ukrainian and/or Ukrainian placement test. Recommended corequisite: course 187B. Tutorial and guided independent study of advanced Ukrainian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. P/NP or letter grading.

187B. Advanced Tutorial Instruction in Ukrainian. (2) Tutorial, one hour; laboratory, one hour. Prerequisite or corequisite: course 187A. Tutorial and guided independent study of advanced Ukrainian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. P/NP or letter grading.

187C-187M. Advanced Tutorial Instruction in Ukrainian. (2 each) Tutorial, one hour; laboratory, one hour. Preparation: prior course in sequence or Ukrainian placement test. Tutorial and guided independent study of advanced Ukrainian: advanced conversation, composition, vocabulary development, and review of selected grammar topics. P/NP or letter grading.

SOCIAL THOUGHT

*Interdisciplinary Minor
College of Letters and Science*

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Jeffrey Prager, Ph.D., *Chair*

Faculty Administrative Committee

Brian P. Copenhaver, Ph.D. (*History, Philosophy*)
Barbara Herman, Ph.D. (*Philosophy*)
Russell Jacoby, Ph.D., *in Residence* (*History*)
Michael Mann, Ph.D. (*Sociology*)
Jeffrey Prager, Ph.D. (*Sociology*)
Brian D. Walker, Ph.D. (*Political Science*)
Matthew Norton Wise, Ph.D. (*History*)

Scope and Objectives

The Social Thought minor provides an opportunity for students to take a series of courses that focus on modern social and intellectual thought from the 17th through the 20th century. The minor builds on lower division introductory exposure to the history of modern ideas as embodied in a number of key texts by significant thinkers such as Descartes, Hobbes, Locke, Smith, Rousseau, Wollstonecraft, Mill, Marx, Weber, Darwin, Nietzsche, Freud, DuBois, de Beauvoir, and others and promotes more intense and broad exposure to the great ideas and modern thinkers of the contemporary world. It culminates with enrollment in a two-term senior thesis tutorial related to a theme from previous coursework and closely supervised by a faculty mentor. The senior thesis occurs in conjunction with a weekly research colloquium where students meet with faculty members to discuss their senior thesis work or related work in the minor.

The minor is intended to supplement the liberal arts education of undergraduates who, through their major, are interested in finding an area of specialization related to career objectives and who seek broad and systematic training in the major ideas of the modern world.

Undergraduate Study

Social Thought Minor

The Social Thought minor is limited to students who formally apply and are admitted. To apply, students must submit an application, a personal statement supporting their interest in pursuing the minor, a letter of recommendation from a faculty mentor, and a transcript to the College Academic Counseling Office, A316 Murphy Hall.

To enter the minor, students must have an overall grade-point average of 2.0 or better and apply for admission only after successfully completing the following lower division requirements: General Education Clusters 21A and 21B, OR two courses from German 56, Honors Collegium 20, 21W, 55, 57, 62, 83W, Philosophy 6, Political Science 10, Sociology 10.

Required Upper Division Courses (16 to 20 units): Four courses spanning at least two different departments selected from Afro-American Studies M114C, Anthropology 181, 182, Civic Engagement M115, Classics M124, Economics 107, Education 138, Geography 134, History 122A, 122C, 122D, M122E, 122F, 131A, 142A, 142B, Honors Collegium 110, Philosophy 151A, C151B, 153A, C153B, 154, C156, Political Science M111A through M114C, M115B, M115C, 116A, 116B, 119, M119A, Public Policy M126, Sociology 101, 102.

Required Research Colloquia and Senior Thesis (12 units): Students must also complete Social Thought 190A and 199A in one term and courses 190B and 199B in the following term.

No more than two courses (8 to 10 units) may be applied toward both this minor and a major or minor in another department or program.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Social Thought

Upper Division Courses

190A-190B. Research Colloquia in Social Thought I, II. (2-2) Seminar, two hours. Corequisite for course 190A: course 199A; for 190B: course 199B. Limited to juniors/seniors. Required of students in Social Thought minor. Designed to bring together students undertaking supervised senior thesis work in seminar setting with one or more faculty members to discuss their work or related work in Social Thought minor. Led by one supervising faculty member. Course 190A may be repeated for credit. P/NP grading.

199A-199B. Directed Research or Senior Thesis in Social Thought I, II. (4-4) Tutorial, to be arranged. Corequisite for course 199A: course 190A; for 199B: course 190B. Limited to juniors/seniors. Required of students in Social Thought minor. Supervised individual research under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. Letter grading.

SOCIAL WELFARE

School of Public Affairs

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fax: (301) 206-7564
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http://www.publicaffairs.ucla.edu/social-welfare

Robert F. Schilling, Ph.D., *Chair and Director, M.S.W. Program*
Alfreda P. Iglehart, Ph.D., *Vice Chair, M.S.W. Program*
Laura S. Abrams, Ph.D., *Chair, Doctoral Program*
Steven Clark, Ph.D., *Director of Field Education*

Professors

Helmut K. Anheier, Ph.D.
Rosina M. Becerra, Ph.D.
A.E. Benjamin, Ph.D.
Yehekel Hasenfeld, Ph.D.
Aurora P. Jackson, Ph.D.
Stuart A. Kirk, D.S.W. (*Marjorie Crump Professor of Social Welfare*)
Barbara J. Nelson, Ph.D.
Paul M. Ong, Ph.D.
Robert F. Schilling, Ph.D.
Fernando M. Torres-Gil, Ph.D.

Professors Emeriti

Diane S. de Anda, Ph.D.
Doris S. Jacobson, Ph.D.
James E. Lubben, D.S.W.
Alex J. Norman, D.S.W.
Jack Rothman, Ph.D.

Leonard Schneiderman, Ph.D.
Rachelle A. Zukerman, Ph.D.

Associate Professors

Laura S. Abrams, Ph.D.
Todd M. Franke, Ph.D.
Alfreda P. Iglehart, Ph.D.
Lené F. Levy-Storms, Ph.D.
Ailee Moon, Ph.D.

Assistant Professors

Bridget J. Freisthler, Ph.D.
Michelle A. Johnson, Ph.D.

Adjunct Professor

JoAnn Damron-Rodríguez, Ph.D.

Adjunct Associate Professor

Jorja J. Leap, Ph.D.

Adjunct Assistant Professor

James McGuire, Ph.D.

Fieldwork Consultants

Laura Alongi, L.C.S.W.
Carole Bender, M.S.W., J.D.
Joycelyn McKay Crumpton, M.S.W.
Woo K. (Toby) Hur, M.S.W.
Katherine M. Kolodziejski, Ph.D., *Emerita*
Jane E. Kurohara, M.S.W., *Emerita*
Gerardo P. Laviña, L.C.S.W.
Karen Lee, L.C.S.W.
Joseph A. Nunn, Ph.D., *Emeritus*
Mary Kay Oliveri, L.C.S.W.
Winifred E. Smith, M.S.W., *Emerita*
Michelle Talley, L.C.S.W.

Scope and Objectives

The primary objectives of the Department of Social Welfare graduate program are to prepare leaders for the profession of social work and to develop the empirical base for all facets of practice. In response to changing demographic trends and the emergence of new social problems, the department provides leadership in the areas of policy, practice, and research and in the development of an innovative curriculum for training students and professionals to meet the service needs of a multicultural clientele.

The educational program is based on the premise that all students need to acquire a common body of knowledge and basic skills, and a common understanding of the philosophy and values of the profession. These then form a sound foundation for the development of more specialized knowledge and skills along the lines of each student's interests and the needs of the field.

Students are encouraged to take advantage of the resources within the University by selecting elective courses in related disciplines. In addition, as a department within the School of Public Affairs, the program affords students instructional opportunities in the other affiliated departments—Public Policy and Urban Planning.

Beyond national opportunities in the profession of social work, there is increasing demand for qualified and experienced social workers to serve in the international field, where many social service programs are conducted under the auspices of the United Nations, the U.S. government, and national sectarian organizations. Graduates of the doctoral program generally secure appointments at major universities or research centers.

The challenge to the department, the profession, and those who join us as students is to prepare to forge the paths, build the bridges, and shape the future to ensure that all individuals, families, and communities enjoy better education, better healthcare, better job training, and better economic futures.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Social Welfare offers the Master of Social Welfare (M.S.W.) degree and the Doctor of Philosophy (Ph.D.) in Social Welfare degree. Four concurrent degree programs (Social Welfare M.S.W./Asian American Studies M.A., Social Welfare M.S.W./Law J.D., Social Welfare M.S.W./Public Health M.P.H., and Social Welfare M.S.W./Public Policy M.P.P.) are also offered.

Social Welfare

Upper Division Courses

100A. Introduction to Social Welfare: Policies and Programs. (4) Lecture, four hours. Origin and development of major U.S. social welfare programs and policies guiding them, with emphasis on analysis of policy developments/issues related to provision of social welfare services. Study of historical and current responses of profession to major social problems. P/NP or letter grading.

100B. Social Welfare Policy: Overview. (4) Lecture, four hours. Prerequisite: course 100A. Review of existing policy regarding major social issues in field of social welfare. Examination of discrepancy between need and capacity of social agencies to address need. Exploration of differential impact of policy on various populations. P/NP or letter grading.

101. Social Welfare in Multicultural Society. (4) Lecture, four hours. Social policy viewed from perspective of various cultural groups. Students to become aware of their own cultural perspective and learn to recognize similarities and differences in values, perspectives, and beliefs across cultural groups. P/NP or letter grading.

102. Social Welfare Organizations and Community Systems. (4) Lecture, four hours. Recommended requisites: courses 100A, 100B. Detailed demonstration of implementation of policy via functioning of human service organizations. Examination of organizational structures/functions. Exploration of characteristics and organization of community and forces that influence its development and change. P/NP or letter grading.

103. Introduction to Direct Practice with Individuals, Families, and Groups. (4) Lecture, four hours. Requisites: courses 100A, 100B, 101. Description and demonstration of basic skills employed in direct social work practice via casework process. Students practice these skills in written, role-play, small group, and video or audio exercises. P/NP or letter grading.

M104C. Diversity in Aging: Roles of Gender and Ethnicity. (4) (Same as Gerontology M104C and Women's Studies M104C.) Lecture, four hours. Exploration of complexity of variables related to diversity of aging population and variability in aging process. Examination of gender and ethnicity within context of

both physical and social aging, in multidisciplinary perspective utilizing faculty from variety of fields to address issues of diversity. Letter grading.

M104D. Public Policy and Aging. (4) (Same as Gerontology M104D.) Lecture, four hours. Examination of theoretical models and concepts of policy process, with application to aging policy. Analysis of decision-making processes that affect aging policy. Description of history of contemporary aging policy. Exploration of current policy issues affecting elderly. P/NP or letter grading.

M104E. Social Aspects of Aging. (4) (Same as Gerontology M104E.) Lecture, four hours. Topics include theories of aging, economic factors, changing roles, social relationships, and special populations. Weekly seminars organized around key aspect of social gerontology. P/NP or letter grading.

105. Social Welfare Policy in Modern America: Historical Perspectives. (4) Lecture, three hours; outside study, nine hours. Historical overview of American social policy dealing with three core societal problems: poverty, sickness, and joblessness. Programs developed by governments to ameliorate these problems have typically been public insurance programs or cash transfers such as unemployment insurance, welfare, and Social Security. Collectively these programs are known as "the welfare state"; examination of origins of the U.S. welfare state, its development over time, and features that make it distinctive as compared to welfare states in other nations. Letter grading.

106. Research Seminar and Field Observation: Social Welfare. (4) Seminar, three hours; discussion, one hour; outside study, eight hours. Didactic component with focus on development of basic skills in the areas of research. Students select one field of observation experience (module) from a number of field settings. P/NP or letter grading.

107. Field Practicum: Social Welfare. (4) Lecture, three hours; discussion, one hour; outside study, eight hours. Prerequisite: course 106. In field practicum students are placed in a specific agency where they combine observation of agency functions with participation in specific agency tasks and roles under instructional supervision of an agency mentor and a UCLA faculty member. P/NP or letter grading.

130A-130B. Community Research and Services Seminars. (4-4) Seminar, three hours; service learning, four hours; outside study, five hours. Course 130A is requisite to 130B. Limited to juniors/seniors. History and roles of social welfare policy within government, organizations, and communities. Reflections about service-learning site experiences, with application of issues related to lecture and seminar readings. Students to be assigned to two-term tutoring/mentoring site where they apply tutoring techniques as they assist middle school children living in impoverished areas of Los Angeles County. In Progress (130A) and P/NP or letter (130B) grading.

131. Poverty, Poor, and Welfare Policy. (4) Seminar, three hours. Limited to juniors/seniors. Current research and policy issues concerning poverty in the U.S., with specific emphasis on single-parent households. Overview of measurements and characteristics of poor people; alternative theoretical explanations of poverty; historical overview of major social welfare policies to combat poverty, particularly Aid to Families with Dependent Children (AFDC) and Personal Responsibility and Work Opportunity Reconciliation Act (PROWA); and critical appraisal of recently enacted state welfare reform policies. Relationship between research knowledge about poverty and current policies, and effects of gender, ethnicity, and class on patterns of poverty and policy responses. P/NP or letter grading.

132. Community Analysis and Community Needs. (4) Lecture, three hours. Limited to juniors/seniors. Theoretical and practical foundation for understanding and depicting demographic composition of communities and for determining community needs. Use of systems theory as organizing framework. Community-level interventions are affected by community's social ecology, culture, economic system, political system, ethnic composition, and class structure. Agen-

cies often seek to define community needs and develop interventions to respond to those needs. Knowledge of community infrastructure necessary for ascertaining its strengths and resources that can be mobilized for addressing and responding to community needs, issues, and concerns. Social service agencies and communities can work together in partnership to enhance quality of community life. P/NP or letter grading.

M140. Introduction to Study of Aging. (4) (Same as Gerontology M140 and Psychology M140.) Lecture, three hours. Designed for juniors/seniors. Perspectives on major features of human aging—biological, social, psychological, and humanistic. Introduction to information on the range of influences on aging to prepare students for subsequent specialization. P/NP or letter grading.

M142SL. Intergenerational Communication across Lifespan. (4) (Same as Gerontology M142SL.) Lecture, three hours; fieldwork, one hour. Limited to juniors/seniors. What do you say to your parents in conversation? How do you talk to your grandparents? Does your family talk well to one another as group? How do you communicate well with boss who is 30 years older than you? Individuals of all ages interact with one another, and their interactions have significance throughout their lives. Introduction to psychological, interpersonal, and societal issues related to intergenerational communication across lifespan. Letter grading.

151. Child Welfare Policy in America. (4) Lecture, three hours. Limited to juniors/seniors. Examination of public child welfare system in the U.S. Review of social policies and programs that impact children. History of social policies and programs for children, including discussion of orphanages, foster care, and adoptions. Transformation of public child welfare system into child protection system. Impact of welfare reform on child policies and programs in the U.S. Major programs designed to provide safety net for disadvantaged children, including welfare, food stamps, child care, child support, and children's allowance programs. Review of research and analysis in this area. Overview of social policies and programs that impact children in the U.S. Examination of comparative policies in other countries. P/NP or letter grading.

162. Health Policy and Services. (4) Seminar, three hours. Limited to juniors/seniors. Contemporary issues in healthcare financing and delivery and historical perspective on these issues. Role of government in healthcare and ways controversy about this role continues to shape and constrain public policy in health. Major public programs, notably Medicare and Medicaid, and their relationship to issues of access and cost for diverse vulnerable populations. Various public and private approaches to healthcare reform and ways of thinking about their predicted impact, cost, and political feasibility. Issues in care of persons with chronic illness and debate about public and private approaches to long-term care reform. Social work roles in healthcare policy and practice. P/NP or letter grading.

163. Prevention of Risky Substance Use and Related Problems. (4) Lecture, four hours. Limited to juniors/seniors. Prevention of substance use and related harms from legal and illegal substances is major concern to parents, communities, and nations. Examination of research related to patterns of drug use and related harm (such as crime and mental health disorders) and effectiveness of interventions to reduce these problems. Through review of science-based programs and policies, evaluation of effectiveness of evidence-based interventions to increase student knowledge, skills, and expertise in determining effective interventions to reduce drug-related harm, using most up-to-date information. P/NP or letter grading.

164. HIV Prevention in U.S. and Developing World. (4) Lecture, three hours. Limited to juniors/seniors. Examination of various approaches to HIV prevention, drawing on infectious disease paradigms from public health and theories of behavior change from fields of psychology, sociology, and communications. Sexual behavior and injection drug use, existing and promising

technologies to reduce HIV transmission, and fiscal, cultural, ethical, and moral dilemmas in allocation of prevention resources. P/NP or letter grading.

M165. Disability Policy and Services in Contemporary America. (4) (Same as Disability Studies M130.) Lecture, three hours. Limited to juniors/seniors. Growing numbers of people of all ages with disabilities are leading active and productive lives in American communities. Many others are struggling to lead such lives. Who are people with disabilities in contemporary America? How has U.S. responded over time to various needs and aspirations of people with disabilities, young and old? What demands have been made over time by disability advocates? How has government addressed demands of advocates for various disability populations? What do we know about extent to which public policies and programs are responsive to people in need? How do demographics, economics, and politics continue to influence evolving public policy responses? P/NP or letter grading.

181. Nonprofit Sector, State and Civil Society. (4) (Formerly numbered C181.) Lecture, three hours; outside study, nine hours. Use of political economy perspective to analyze forces that have shaped rise and characteristics of nonprofit sector and its constituent elements. Examination of social history of nonprofit sector in U.S. Exploration of legal and policy environments and distinct organizational forms. Comparative perspective between U.S. and other countries. P/NP or letter grading.

191. Variable Topics Research Seminars: Social Welfare. (4) Seminar, three hours; outside study, nine hours. Examination in depth of particular subfield of social welfare (e.g., child welfare, children and youth, nonprofit, health, mental health). Limits of investigation set by individual instructor. May be repeated for credit with topic change. Letter grading.

194. Internship Seminars: Social Welfare. (1) Seminar, one hour; outside study, three hours. Corequisite: course 195. Not open to freshmen. Introduction to topics relevant to psychosocial determinants of children's health and community resources for children and families, with opportunity to gain breadth and depth of knowledge in seminar setting. May be repeated for credit. P/NP grading.

195. Community Internships in Social Welfare. (2) Tutorial, four hours. Corequisite: course 194. Not open to freshmen. Introductory course in community-based child health and advocacy. Students learn about community resources for children and families through service learning experience and work with pediatric patients and families in UCLA pediatric unit. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for credit. Individual contract with supervising faculty member required. Letter grading.

199. Directed Research in Social Welfare. (2 or 4) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

201A-201B. Dynamics of Human Behavior. (3-3) Lecture, two hours; discussion, one hour. Biopsychosocial factors associated with individual and group behavior and development as applicable in social functioning of individuals and groups. Emphasis on theoretical issues and research evidence which contribute to unified theory of human development. Letter grading.

202A-202B. Dynamics of Human Behavior. (2-2) Discussion, two hours. Requisites: courses 201A, 201B. Deviations and pathologies or stresses in physical, emotional, and social areas of human functioning as those problems relate to role and function of social workers. S/U or letter grading.

203A-203B-203C. Integrative Seminars. (2-2-2) Seminar, two hours. Integrative courses that bring together theory and practice of social work in variety of topic areas relevant to profession. Includes identification of problem areas and populations-at-risk requiring further examination. S/U or letter grading.

M203F-M203G-M203H. Child Abuse and Neglect. (2-2-1) (Same as Community Health Sciences M245A-M245B-M245C, Dentistry M300A-M300B-M300C, Education M217G-M217H-M217I, Law M281A-M281B, Medicine M290A-M290B, and Nursing M290A-M290B-M290C.) Lecture, two hours. Course M203F is requisite to M203G, which is requisite to M203H. Intensive interdisciplinary study of child physical and sexual abuse and neglect, with lectures by faculty members of Schools of Dentistry, Law, Medicine, Nursing, and Public Health and Departments of Education and Psychology, as well as by relevant public agencies. Letter grading.

205. Cross-Cultural Awareness. (4) Lecture, two hours; discussion, two hours. Designed to aid students in development of professional perspectives that will allow them to work effectively with members of myriad cultural groups, to discuss with clarity alternative concepts of culture in determination of individual behavior responses, and to identify their own personal cultural values and assumptions. S/U or letter grading.

M206A. Homelessness: Housing and Social Service Issues. (4) (Same as Urban Planning M270.) Lecture, 90 minutes; discussion, 90 minutes; one field trip. Review of current status of homelessness: who homeless are, what social services and housing are available, existing and proposed programs—appropriate architecture, management, and sources of funding. Outside speakers include providers of services to homeless. Letter grading.

220. History and Philosophy of Social Welfare. (2) Discussion, two hours. History of social work as field: body of knowledge, method and process, and point of view analyzed within context of economic, political, social, philosophical, and scientific climate of period. S/U or letter grading.

M221A. Foundations of Social Welfare Policy. (4) (Same as Public Policy M260 and Urban Planning M241.) Lecture, three hours. Nature, roles, and history of welfare institutions in different societies; applicable social system theory of different components of welfare system; theory and research about welfare policies and organizational forms. S/U or letter grading.

221B. Social Welfare Policy and Services II. (4) Lecture, three hours; outside study, nine hours. Understanding of significant theoretical constructs and relevant empirical evidence dealing with how organizations develop and maintain their internal functions. Development of beginning skill in organizational analysis. Special attention to organizational analysis of social welfare services. S/U or letter grading.

223. Seminar: Social Work Profession. (2) Seminar, two hours. Nature and role of social work in contemporary society; relationships with other professions; probable future trends in profession; social work ethics, professional organizations, certification licensing; professional responsibility for continued self-criticism and improvement of profession. S/U grading.

225A-225B. Social Welfare Policy. (4-4) Seminar, three hours. Designed for Ph.D. students. Letter grading:

225A. Formulation and Analysis. (4) Seminar, three hours. Designed for Ph.D. students. Examination of principal issues in development, formulation, and adoption of U.S. social welfare policies, with particular focus on income distribution and redistribution. Emphasis on analysis of social policy issues and conceptual frameworks for analysis. Letter grading.

225B. Implementation and Evaluation. (4) Seminar, three hours. Designed for Ph.D. students. Examination of issues in implementation and evaluation of social welfare policies, particularly those pertaining to provision, organization, and delivery of social services, including auspices funding, distribution, criteria for effectiveness, and use of quantitative methods in policy analysis. Letter grading.

229A. Craft of Social Welfare Scholarship I. (4)

Lecture, three hours; outside study, nine hours. Limited to Ph.D. students. Exploration of one problem for study—its history, current state of knowledge about why problem exists, and what might be done about it. Survey of several problems and alternative ways in which problems have been conceptualized and studied to understand how scholars use theory and empirical evidence to advance what is known, what is yet unknown, where there are important gaps in understanding particular problems, and what might be done to solve them. Letter grading.

229B. Craft of Social Welfare Scholarship II. (2)

Lecture, 90 minutes; outside study, four and one half hours. Enforced requisite: course 229A. Limited to Ph.D. students. Continued narrowing of student focus on one social welfare research problem, moving from understanding of evolution and context of general problem to more detailed and intensive review of research literature on specific researchable question to deepen student understanding of existing knowledge on topic and begin to identify one or more critical gaps in knowledge to explore. Discussion of different methods of summarizing research literatures, identifying seminal studies, and interpreting contradictory findings. Regular meetings to discuss ongoing work and to encourage students to review their work with their faculty advisers and/or other mentors with expertise in their problem areas. Letter grading.

229C. Craft of Social Welfare Scholarship III. (2)

Lecture, 90 minutes; outside study, four and one half hours. Enforced requisite: course 229B. Limited to Ph.D. students. Focus on craft of scholarly writing for publication to help students develop effective narrative frame for presentation, make choices about extent of detail and shape of literature review, and achieve cogent presentation and conclusion. Consideration of elements of effective professional writing. Letter grading.

230A-230B-230C. Theory of Social Welfare Practice with Individuals, Families, and Groups I, II, III. (2-2-2) Lecture, two hours. Corequisite: required social work practicum. Introduction to theory of social work with individuals and small groups and to principles of practice which are derivative of this and related theory. S/U or letter grading.

231A-231B-231C. Advanced Theory of Social Welfare Practice with Individuals, Families, and Groups IV, V, VI. (4-4-4) Lecture, three hours; outside study, nine hours. Corequisite: required social work practicum. Advanced-level, critical analysis of theories, concepts, and principles underlying social case-work practice. Specific attention to deviation and stress as conditions affecting functioning of individuals and groups and to diagnostic knowledge and competence required in rehabilitation and prevention. S/U or letter grading.

231E. Advanced Theory of Social Welfare Practice with Individuals, Families, and Groups—School Social Work. (4) Lecture, three hours; outside study, nine hours. Integration of theory and practice as they pertain to role of social workers in school settings. Biopsychosocial/ecological assessment of students (including, but not limited to, differences due to ethnic and/or cultural diversity and to students who are learning handicapped), ecological intervention strategies, collaboration within multidisciplinary team, and role of liaison between pupils, family, school, and community. Use of discussion, videos, current literature, and case presentation to explore impact of school social workers as change agents. S/U or letter grading.

231F. Advanced Theory of Social Welfare Practice with Individuals, Families, and Groups—Cognitive-Behavioral Theories and Methods. (4) Lecture, three hours; outside study, nine hours. Corequisite: required social work practicum. Advanced-level, critical analysis of key contributors, essential concepts, core theories, current controversies, and recent research findings in contemporary cognitive-behavioral therapy; case conceptualization from cognitive-behavioral perspective; specific cognitive and behavioral assessment methods and intervention techniques and their typical applications; contextual considerations, in-

cluding human diversity and other sociocultural and developmental factors, in arriving at case conceptualizations and treatment plans. S/U or letter grading.

231G. Advanced Theory of Social Welfare Practice with Individuals, Families, and Groups—Substance Abuse Intervention. (4) Lecture, three hours; outside study, nine hours. Corequisite: required social work practicum. Advanced-level, critical analysis of major intervention approaches—individual, family, group, and environmental—to treating substance abuse and dependency. Specific attention to skills and self-awareness to integrate biological, psychological, and social factors in assessing and intervening with substance-using clients and target populations. S/U or letter grading.

231J. Advanced Theory of Social Welfare Practice with Individuals, Families, and Groups—Child Welfare. (4) Lecture, three hours; outside study, nine hours. Corequisite: required social work practicum. Advanced-level, critical analysis of role of public child welfare worker in relationship to consumer, agency, and community. Further development of social work and case management skills in context of public child welfare practice. Clinical case management explored as intervention in its own right in addition to its use as mechanism for linking children and families to other social systems, professions, and forms of intervention. Interpretation of current public child welfare events, trends, terms, and laws and their relationship to direct practice issues. S/U or letter grading.

231M. Advanced Theory of Social Welfare Practice with Individuals, Families, and Groups—Health. (4) Lecture, three hours; outside study, nine hours. Corequisite: required social work practicum. Advanced-level, critical analysis of various roles that social workers occupy in health settings and strategies for working with healthcare teams. From case-based approach, examination of variety of clinical challenges, assessment techniques for use in multiple settings, and interventions to implement with individuals, families, groups, and multidisciplinary healthcare teams. Evaluation of policy implications that impact social work practice in health settings. S/U or letter grading.

231N. Advanced Theory of Social Welfare Practice with Individuals, Families, and Groups—Children, Adolescents, and Families. (4) Lecture, three hours; outside study, nine hours. Corequisite: required social work practicum. Advanced-level, critical analysis of advanced direct practice specializing in child, adolescent, and family practice cases encountered in variety of agency-based practice settings. Advanced theory, methods, and research in child, adolescent, and family clinical social work practice. S/U or letter grading.

231P. Advanced Theory of Social Welfare Practice with Individuals, Families, and Groups—Gerontology. (4) (Formerly numbered 231D.) Lecture, three hours; outside study, nine hours. Corequisite: required social work practicum. Advanced-level, critical analysis of theoretical models related directly to practice with diverse population of older adults. Presentation of comprehensive tools for multidimensional geriatric assessment. How to engage in collaborative treatment planning across range of late-life problems and address impediments to intervention process. Theoretical underpinnings and most effective practice models to enable students to serve needs of older clients and their families as they adjust to late-life transitions, as well as to health and mental health problems most prevalent for older adults. Client populations range from well elderly to physically frail and/or demented from diverse backgrounds. S/U or letter grading.

240A-240B. Theory of Social Welfare Practice in Organizations, Communities, and Policy Settings I, II. (3-3) Lecture, three hours. Corequisite: required social work practicum. Historical and theoretical developments in administration, planning, and community organization; understanding the community as a social system; administration of organizations; role of the practitioner in identification, analysis, and evaluation of needs, existing programs, policies, structures, and strategies of intervention. Letter grading.

241A-241B-241C. Advanced Theory of Social Welfare Practice in Organizations, Communities, and Policy Settings IV, V, VI. (4-4-4) Lecture, three hours; outside study, nine hours. Corequisite: required social work practicum. Emphasis on various patterns of community action for attaining social welfare objectives; research and field experience directed toward study of social problems within context of community planning; emerging patterns of physical, economic, and social planning within framework of social change theory. S/U or letter grading.

M241D. Social Advocacy and Domestic Violence. (4) (Same as Law M359.) Lecture, three hours; field-work. Use of domestic violence as case study to give students skills needed to advocate for individuals or issues. How systems work, how law legitimizes systems, and how advocacy can be used to change systems. Letter grading.

M241E. Leadership, Development, and Governance of Nonprofit Organizations. (4) (Same as Public Policy M228 and Urban Planning M288.) Lecture, three hours; outside study, nine hours. Designed for graduate students. Various patterns of community action for attaining social welfare objectives; research and field experience directed toward study of social problems within context of community planning; emerging patterns of physical, economic, and social planning within framework of social change theory. Letter grading.

M241F. Strategic Planning for Public and Nonprofit Organizations. (4) (Same as Public Policy M247 and Urban Planning M290.) Lecture, three hours; outside study, nine hours. Designed for graduate students. Technical processes of problem solving regarding substantive social welfare problems at community level. This form of community practice fills niche between professional and knowledge and skill set possessed by agency and program administrators on one hand and by policy analysts and policymakers on other. Letter grading.

245A-245B. Development of Social Work Practice Theory. (4-4) Seminar, three hours. Designed for Ph.D. students. Letter grading.

245A. Epistemology of Practice. (4) Seminar, three hours. Designed for Ph.D. students. Guiding scientific models of practice theories; process of emergence, development, and change of practice theories; intellectual foundations of practice theories; how professionals learn, apply, accumulate, and modify their practice knowledge; science and practice interplay. Letter grading.

245B. Models of Social Work Practice Research. (4) Seminar, three hours. Designed for Ph.D. students. Research for practice, with major emphasis on methods of intervention research that seek to design, test, evaluate, and disseminate innovative intervention technologies. Letter grading.

249A-249B-249C. Foundations of Scientific Inquiry I, II, III. (4-4-4) Lecture, three hours; outside study, nine hours. Limited to Ph.D. students. Introduction to underlying logic(s) of scientific inquiry to provide students with building blocks for independent scholarship. Letter grading. **249A.** Experimental and quasi-experimental approaches in intervention research, ways of enhancing internal, external, and statistical conclusion validity, and inferring causality. **249B.** Enforced requisite: course 249A. Survey design, sampling strategies and external and construct validity, methods of data collection, and reliability as measurement issue. **249C.** Enforced requisite: course 249B. Introduction to array of qualitative research strategies.

258. Critical Problems in Social Welfare. (2) Discussion, two hours. Designed for Ph.D. students. Current problems in field of social welfare. Specific topics vary depending on research and educational interests and needs of class. May be repeated for credit. S/U grading.

280. Social Welfare Research. (3) Lecture, three hours; outside study, six hours. Sources, nature, and uses of social work theory and research-based knowledge and of broader social data relevant to social welfare activities. Critical analysis of major methods of developing scientific knowledge. S/U or letter grading.

281A-281B-281C. Advanced Social Welfare Research. (2-2-2) Discussion, two hours. Individual or group research projects requiring intensive examination and analysis of social problem area, directed toward development of research knowledge and techniques for social work practice. In Progress (281A, 281B) and S/U or letter (281C) grading.

285A-285B-285C. Research in Social Welfare. (4-4-4) Discussion, three hours. Review of areas of research of concern to social workers, with special attention to design, instrument construction, data collection, data processing, data reduction, analysis, and interpretation. Designs studied include survey, panel, experimental observation, and theory development research. S/U or letter grading.

285D. Research in Child Welfare. (4) Lecture, three hours. Integrated examination of development of empirical research in child welfare field. Critical assessment of current approaches to meet needs of children who come to attention of child welfare agencies. Examination of research and theory in child welfare field. Review of student knowledge of research methods and statistics. Letter grading.

285E. Research in Gerontology. (4) Lecture, three hours. Overview of research in aging. Development of research questions, selecting appropriate theoretical frameworks, conducting literature reviews, selecting appropriate research design, identifying sampling methods. Special considerations in aging research, including sampling, questionnaire design, and recruitment issues. Letter grading.

285F. Research in Health. (4) Lecture, three hours. Research in area of health policy and services. Discussions of readings about range of research from field of health services. Identification of research design issues, design of research instruments, analysis of strengths and limitations of current approaches to health services research, consideration of alternative roles for social work practitioners in arena of health services. Letter grading.

285G. Research in Mental Health. (4) Lecture, three hours. Research methods in mental health. Application of experimental designs, survey research methods, ethnographic methods, single-subject designs, and observational methods. Operational definition of variables and selection and design of appropriate measures for research in mental health. Practice in critiquing published research related to mental health issues. Letter grading.

285H. Program Evaluation Research. (4) Lecture, three hours. Discussion of differences and similarities between evaluation and other research, alternative program evaluation methods, roles and limitations of evaluation research in real world, development of proposals for feasible program evaluation research. Letter grading.

285I. Research in Youth Populations. (4) Lecture, three hours. Research methods as applied to problems, issues, and interventions pertaining to youth populations. Instruction and experience in applying experimental and quasi-experimental designs, survey research methods, ethnographic methods, single-subject designs, and observational methods. Operational definition of variables and selection and design of appropriate measures for research with children and adolescents. Letter grading.

286A. Survey of Research Methods. (4) Seminar, three hours. Basic concepts underlying research methods. Content includes theoretical and conceptual approaches to research problem formulation; research design, including experimental, comparative, and survey; sampling; statistical methods; methods of observation and techniques of data analysis. Letter grading.

286B. Advanced Research Methods. (4) Seminar, three hours. Advanced concepts underlying research methods. Continuing study of theoretical and conceptual approaches to research problem formulation; research design, including experimental, comparative, and survey; sampling; statistical methods; methods of observation and techniques of data analysis. Letter grading.

286C. Research Internship. (4) Fieldwork, four hours. Supervised study and training through participation in on-going research project or one initiated by students and carried out under faculty supervision, enabling students to apply research skills developed in prior courses. May be repeated for credit. S/U grading.

290A-290B-290C. Seminars: Social Work. (4-4-4) Seminar, three hours; outside study, nine hours. Series of seminars dealing with trends in social work and social welfare, with focus on current social problems affecting individuals, groups, and communities and new patterns of intervention based on recent demonstrations and research. S/U or letter grading.

M290D. Women, Health, and Aging: Policy Issues. (4) (Same as Health Services CM241.) Lecture, three hours; discussion, one hour. Preparation: two upper division social sciences courses, two upper division biological sciences courses. Social and economic context of older women's aging, major physical and psychological changes older women experience, delivery of health services to this population, and policies that respond to their health needs. Letter grading.

M290I. Children with Special Healthcare Needs: Systems Perspective. (4) (Same as Community Health Sciences M420 and Health Services M420.) Lecture, three hours; fieldwork, one hour. Examination and evaluation of principles, policies, programs, and practices that have evolved to identify, assess, and meet special needs of infants, children, and adolescents with developmental disabilities or chronic illness and their families. Letter grading.

M290J. Child Welfare Policy. (4) (Same as Public Policy M212.) Lecture, three hours. Development of social policy as it affects families and children from different cultural backgrounds and as it is given form in public child welfare system. Examination of development of an infrastructure to support needs of children and families. S/U or letter grading.

M290K. Mental Health Policy. (4) (Same as Public Policy M213.) Lecture, three hours. Examination of evolution of social policy and services for mentally ill, with emphasis on political, economic, ideological, and sociological factors that affect views of mentally ill and services they are provided. S/U or letter grading.

M290L. Poverty, Poor, and Welfare Reform. (4) (Same as Public Policy M214 and Urban Planning M246.) Lecture, three hours. Major policy and research issues concerning poverty and social welfare policy directed toward poor in U.S. S/U or letter grading.

M290M. Health Policy. (4) (Same as Public Policy M215.) Lecture, three hours. Introduction to contemporary issues in healthcare financing and delivery, providing historical perspective on emergence of these issues. Examination of major public programs and their relationship to issues of access and cost. S/U or letter grading.

M290N. Public Policy for Children and Youth. (4) (Same as Public Policy M216.) Lecture, three hours. Policy issues that affect children and adolescents in relation to their interaction with schools and community, with emphasis on impact of policy across federal, state, and local levels. S/U or letter grading.

M290P. Aging Policy, Elderly and Families. (4) (Same as Public Policy M261.) Lecture, three hours; outside study, nine hours. Designed for graduate students. Examination of theoretical models and concepts of policy process and application to aging policy. Analysis of decision-making processes that affect social policies. Description of historical development of contemporary policy. Exploration of current proposals and issues. Letter grading.

M290Q. Social Welfare Policy in Asian American Communities. (4) (Same as Asian American Studies M290Q.) Seminar, three hours. Overview of social welfare policy in Asian American communities. Introduction to major social welfare policies and programs in the U.S. and impact on Asian American communities. Policy development, approaches, processes of implementation, evaluation, and strategies to effect policy. S/U or letter grading.

M290R. Law and Poor. (4) (Same as Law M215, Public Policy M295, and Urban Planning M248.) Lecture, three hours. Designed for graduate students. Study of major income-maintenance programs in U.S., with emphasis on interaction of moral attitudes toward poor and structure and implementation of law, policy, and administration. Current reform consensus and major reforms. Letter grading.

M290S. Nonprofit Sector, State and Civil Society. (4) (Formerly numbered CM290S.) (Same as Public Policy M227 and Urban Planning M287.) Lecture, three hours; outside study, nine hours. Use of political economy perspective to analyze forces that have shaped rise and characteristics of nonprofit sector and its constituent elements. Examination of social history of nonprofit sector in U.S. Exploration of legal and policy environments and distinct organizational forms. Comparative perspective between U.S. and other countries. S/U or letter grading.

290T. Social Work and Juvenile Justice System. (4) Lecture, three hours; outside study, nine hours. Designed for graduate students. Exploration of evolution of juvenile justice system in the U.S. and issues that have shaped current-day practice. Role of social workers in system to be theme throughout course. Letter grading.

M290U. Community Development and Housing Policies: Roles of State, Civil Society, and Nonprofits. (4) (Same as Public Policy M243 and Urban Planning M275.) Lecture, three hours; outside study, nine hours. Designed for graduate students. Examination of role of U.S. housing policy and role of government agencies and community organizations. Is problem housing or economic development? Should interventions be directed toward inner city housing markets or through neighborhood strategies? What lessons can be learned from experiences of other countries? Letter grading.

M290V. Management Challenges and Tools for Nonprofit Sector. (4) (Same as Public Policy M226 and Urban Planning M286.) Lecture, three hours; outside study, nine hours. Designed for graduate students. Fundamental building blocks for successful management in nonprofit sector. Students develop management skills in strategic thinking/problem solving, project management, team building, and negotiation. Use of case studies to troubleshoot critical challenges, from finance to crisis management to marketing, that nonprofit managers typically face. Letter grading.

290W. International Social Welfare. (4) Lecture, three hours; outside study, nine hours. Intended for graduate students interested in pursuing analysis of key international social welfare issues. Topics approached from perspective of globalization of social, economic, and political activities. Problems of global poverty, social injustice and inequality, and issues of racial, ethnic, and cultural diversity, with emphasis on multifaceted contributions of social work, social services, and social welfare and international social development within rich and poor countries. Acquisition of knowledge of international social welfare activities, as well as analytical skills to address and debate complex international issues. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

401A-401B-401C. Practicum: Social Work. (3-3-3) Laboratory, 20 hours. Educationally directed practicum conducted in selected health, welfare, and educational facilities. Provides opportunities for students to test their theoretical knowledge and to acquire disciplined practice foundation in profession. In Progress (401A, 401B) and S/U (401C) grading.

402A-402B-402C. Advanced Practicum: Social Work. (4-4-4) Laboratory, 24 hours. Requisites: courses 401A, 401B, 401C. Practicum in social work, arranged for students in keeping with their major field of study. In Progress (402A, 402B) and S/U (402C) grading.

490. Professional Communication for Social Welfare. (2) Lecture, two hours. Writing workshop on students' papers in progress, with eye toward scholarly publication. Analysis and group discussion of rhetorical and stylistic principles. May be repeated once. S/U grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596A. Special Study and Research in Social Welfare. (2 to 8) Tutorial, to be arranged. Individual programming for selected students to permit pursuit of subject in greater depth. S/U or letter grading.

596B. Special Study and Research for Ph.D. Candidates. (2 to 12) Tutorial, to be arranged. Limited to Ph.D. students. S/U grading.

597A. Preparation for M.S.W. Comprehensive Examination. (2 to 8) Tutorial, to be arranged. S/U grading.

597B. Preparation for Ph.D. Qualifying Examinations. (2 to 12) Tutorial, to be arranged. Limited to Ph.D. students. S/U grading.

599. Ph.D. Dissertation Research in Social Welfare. (2 to 12) Tutorial, to be arranged. Limited to Ph.D. students. S/U grading.

SOCIETY AND GENETICS

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Assistant Professor

Aaron L. Panofsky, Ph.D.

Adjunct Assistant Professor

Deborah Greenfield, J.D.

Scope and Objectives

The minor in Society and Genetics provides undergraduate students with the opportunity to understand and probe the complex problems and possibilities presented by genetics, with

special attention to their social context and content. Given the dynamic interaction between genetics and the social world in which it is embedded, the minor is robustly multidisciplinary.

The emphasis on multidisciplinary scholarship is reflected in the collaborative cross-disciplinary approach to instruction in the core courses of the minor, as well as in the wide range of elective courses available in such areas as anthropology, biology, history, philosophy, public policy, and sociology.

Undergraduate Study

Society and Genetics Minor

To enter the Society and Genetics minor, students must (1) have an overall grade-point average of 2.5 or better and (2) file a petition in 1323 Rolfe Hall no later than three terms before graduation. They are encouraged to declare the minor as early as possible and to discuss their proposed course of study with the undergraduate adviser.

Required Upper Division Courses (30 to 34 units): (1) Society and Genetics 101 or, for life sciences majors, a 4- or 5-unit upper division elective course from the approved list of courses issued each term by the program, (2) course 102W, (3) course 191, and (4) at least four upper division elective courses (minimum 16 units) from the approved list. One individual research tutorial (course 199) may be applied; enrollment in additional 199 courses may be considered by petition.

Students may petition to have a course not on the approved list applied toward the four-course elective requirement.

No more than one upper division course may be applied toward both this minor and a major or minor in another department or program. Each minor course must be taken for a letter grade. Successful completion of the minor is indicated on the transcript and diploma.

Society and Genetics

Upper Division Courses

101. Genetic Concepts for Human Sciences. (5) Lecture, three hours; discussion, one hour. Not open for credit to students with credit for Life Sciences 4. Focused treatment of selected complex genetic concepts from molecular biology, population and quantitative genetics, and evolutionary biology, with emphasis on gene-environment interaction at various levels and culminating in exploration of notion of coevolution of genetics and society. Basic science concepts presented through real-world issues and research problems. Current research on cancer, immune system and development, and how this research is performed and adds to knowledge. Letter grading.

102W. DNA: Promise and Peril. (5) (Formerly numbered M102W.) Lecture, three hours; discussion, one hour. Enforced requisite: English Composition 3 or 3H or English as a Second Language 36. Sequence of entire personal genome is now available to us. Consideration of impact that knowledge of this genomic sequence has on concepts of ourselves as individuals and of our place in biological universe. Exploration of how this information influences concepts of race/ethnicity and gender. Examination of ability of DNA-

based forensics to identify specific individuals. Ownership and commodification of genes. Discussion of human cloning for reproductive and therapeutic purposes. Human Genome Project influence on not just medicine, but our concepts of self and identity. Satisfies Writing II requirement. Letter grading.

120. Using Genetics to Infer Human History. (4) Seminar, three hours. DNA elucidates human history in ways that traditional historical investigation sometimes cannot. Introduction to field for nonspecialists. Discussion of practical and theoretical background (e.g., challenges of using ancient DNA, population genetic theory) necessary to critically evaluate genetic history studies examined later. Prehistory (such as origins of man anatomically and how humans colonized world), with focus on how genetic analysis has been used to investigate major agricultural expansions in Europe, Asia, and Africa; Lemba people of South Africa; Anglo-Saxon migrations into British Isles; genetic legacy of Genghis Khan; origins of Etruscans; foundation of royal family of Nso of Cameroon; and male line conservation of Jewish Cohanim priesthood, descendants of Aaron, brother of Moses. Letter grading.

130. Biotechnology and Society. (4) Lecture, three hours. Technical manipulation of living matter from humans, animals, and plants as scientific and social undertaking. How biotechnology came into existence. Questions, controversies, and changes that come with ability to make living technologies. Rise of engineering ideal in American biology. Biological modernism, ideas of immortality and technical suppression of death, molecularization of life, genetic engineering, food biotechnology, and control of reproduction. Practice and perception of living bodies as factories and machines. Changing economic and legal infrastructure of biological invention. Unfolding of contemporary social controversies concerning biotechnology. Letter grading.

180. Special Courses in Society and Genetics. (4) Lecture, three hours. Departmentally sponsored experimental or temporary courses on selected topics, such as those taught by visiting faculty members. May be repeated for credit with topic change. Letter grading.

188. Special Courses in Society and Genetics. (4) Seminar, three hours. Departmentally sponsored experimental or temporary courses on selected topics, such as those taught by visiting faculty members. May be repeated for credit with topic change. Letter grading.

190. Research Colloquia in Society and Genetics. (1) Seminar, one hour. Limited to juniors/seniors. Designed to bring together advanced undergraduate students undertaking faculty-supervised tutorial research to discuss their own work or related work in society and genetics. May be repeated once for credit with topic change. P/NP grading.

191. Variable Topics Research Seminars: Perspectives in Society and Genetics. (5) Seminar, three hours. Enforced requisites: courses 101 (or Life Sciences 4), 102W. Discussion of genetics and society from historical perspective. How science of genetics itself is deeply social. Study of how biologists and anthropologists have conceptualized relations of genes and (social) environment. Reading of accounts of human nature, human flourishing, and dignity that seem to privilege nature as something that can guide ethical thought and action. How these accounts would encourage or discourage people from manipulating their genetic inheritance. Consideration of what is new in new genetics. Current discussions of promise and peril of genetics in relation to society. Culminating paper required. May be repeated once for credit with topic change. Letter grading.

193. Journal Club Seminars: Society and Genetics. (1) Seminar, one hour. Limited to undergraduate students. Discussion of topics related to guest speaker series. May be repeated for credit. P/NP grading.

196. Research Apprenticeship in Society and Genetics. (2) Tutorial, six hours. Limited to juniors/seniors. Entry-level research opportunities in society and genetics under guidance of faculty mentor. May be repeated for maximum of 4 units. Individual contract required. P/NP or letter grading.

197. Individual Studies in Society and Genetics. (2 to 4) Tutorial, to be arranged. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned readings and tangible evidence of mastery of subject matter (paper or other product) required. May be repeated for credit. Individual contract required. Letter grading.

199. Directed Research in Society and Genetics. (2 to 4) Tutorial, one hour. Limited to juniors/seniors. Faculty-supervised individual research or investigation in society and genetics by advanced undergraduate students. Culminating paper or project required. May be repeated once for credit with topic change. Individual contract required. Letter grading.

SOCIOLOGY

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César J. Ayala, Ph.D.
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Cameron D. Campbell, Ph.D.
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Roger Waldinger, Ph.D.
Andreas P. Wimmer, Ph.D.
Maurice Zeitlin, Ph.D.
Min Zhou, Ph.D.
Lynne G. Zucker, Ph.D.

Professors Emeriti

Jeffrey C. Alexander, Ph.D.
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Kenneth D. Bailey, Ph.D.
Phillip Bonacich, Ph.D.
Burton R. Clark, Ph.D.
Robert M. Emerson, Ph.D.
Harold Garfinkel, Ph.D.
Oscar Grusky, Ph.D.
John E. Horton, Ph.D.
Ivan H. Light, Ph.D.

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William M. Mason, Ph.D.
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Richard D. Grannis, Ph.D.
Mignon R. Moore, Ph.D.
Gabriel Rossman, Ph.D.

Adjunct Associate Professor

Ana Maria Goldani, Ph.D.

Scope and Objectives

Sociology is the study of the organization, dynamics, and consequences of social life. The scope of the discipline is as broad and diverse as social life itself. Sociologists study social interaction and relationships, organizations and institutions, communities and whole societies. The methods of sociological investigation are also varied: sociologists immerse themselves in the daily life of groups, interview group participants, examine recorded interaction, interpret historical documents, analyze census data, and conduct large surveys. The methods and concepts of sociology yield powerful insights into the social processes shaping lives, problems, and possibilities in contemporary society. The capacity to identify and understand these processes—a capacity that C.W. Mills called the “sociological imagination”—is valuable preparation for personal and professional participation in a changing and complex world.

In addition to contributing to a liberal arts education, the Sociology major prepares individuals for a broad range of career options and graduate and professional studies. The analytic perspectives and skills gained in the major are a foundation for careers in law, social welfare, urban planning, business, education, and public health. The major also provides a foundation for students intending to pursue graduate work in sociology and related fields. Employment opportunities available to the graduate with a Bachelor of Arts degree in Sociology also include work in community service organizations and health agencies, government service, and human resources.

The Sociology Department faculty includes internationally renowned scholars who address topics ranging in scope from the organization of face-to-face interaction to the consequences of globalization. The department boasts outstanding teachers—five of whom have won Distinguished Teaching Awards—and excellently trained teaching assistants, many of whom have also won awards. The select honors program has a record for training students in the

fundamentals of research and generating honors theses of substantial accomplishment.

The Ph.D. in Sociology usually leads to a career in research and/or teaching. Although most sociologists are employed by universities, there are increasing career opportunities in government and other nonuniversity research centers.

Undergraduate Study

Sociology B.A.

Sociology Premajor

Only students with less than 90 units completed (excluding Advanced Placement units/credit) may declare the Sociology premajor once they complete either Sociology 1 or 20 with a grade of C or better.

Preparation for the Major

Required: Sociology 1, 20; one course from Mathematics 2, 3A, or 31A; one course from Statistics 10, 11, 13, or Psychology 100A.

A minimum grade of C is required in each preparation for the major course. Students with a grade-point average less than 2.5 in the preparation coursework are not eligible for admission to the major. Students who repeat any preparation course more than once are automatically denied admission to the major.

Freshman Students

Students must petition to declare the Sociology major. All preparation for the major courses should be completed by the end of the Fall Quarter of the third year at UCLA. If Sociology 101 or 102 has already been completed, a grade of C or better is required. Grades in any other completed sociology courses for the major must be C– or better.

Transfer Students

Transfer applicants to the Sociology premajor with 90 or more units must complete the following introductory courses prior to admission to UCLA: one introduction to sociology course, one finite mathematics or calculus course, and one statistics course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Eleven upper division courses, including (1) two theory courses—Sociology 101, 102; (2) one methods course from Sociology 113 or Statistics 112; (3) one course from each of the following core areas: (a) *interactions*—Sociology 111, 119, M124A, CM125, 130, 132, 133, 134, (b) *institutions and social processes*—courses 116, 143, 158, 173, M174, M175, M176, (c) *power and inequality*—courses 156, 157, M161, M162, M165, 182, 183, 185; and (4) any five upper division sociology elective courses.

Students should complete course 101 and the core courses before taking other upper division courses. Each course for the major must be

taken for a letter grade. To graduate, students must have at least a 2.0 grade-point average in their upper division major courses, with grades of C or better in Sociology 101 and 102.

Only 8 units of Sociology 199 are allowed. The two theory courses, three core area courses, and one sociology elective (six courses total) must be taken while in residence in the College of Letters and Science at UCLA.

Honors Program

The honors program in sociology provides opportunity for outstanding students to undertake an independent year-long research project under the guidance of a faculty member.

As preparation for the honors program, students must complete all preparation for the major courses.

Prior to taking other upper division sociology courses, students must complete a 189 honors seminar section of Sociology 101 and 102. They then must complete all upper division requirements for the major.

After acceptance into the honors program, students are required to take courses 191H, 198A, 198B, and 198C (honors thesis seminars) which may be applied as electives toward the major requirements.

Students must have a 3.5 overall grade-point average, have completed the sociology preparation requirements and, in most cases, have completed the required theory course. Applications are available from the Undergraduate Counselor's Office, 254E Haines Hall. Students should apply in their junior year.

Computing Specialization

Majors in Sociology may select a specialization in Computing by (1) satisfying all the requirements for a bachelor's degree in the major, (2) completing Program in Computing 10A, 10B, 10C, and (3) completing Sociology 112, 113. Each course must be taken for a letter grade. Students graduate with a bachelor's degree in sociology and a specialization in Computing.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Sociology offers Master of Arts (M.A.), Candidate in Philosophy (C.Phil.), and Doctor of Philosophy (Ph.D.) degrees in Sociology.

Sociology

Lower Division Courses

1. Introductory Sociology. (5) Lecture, four hours; discussion, one hour. Survey of characteristics of social life, processes of social interaction, and tools of sociological investigation. P/NP or letter grading.

M5. Social Organization of Black Communities. (5) (Same as Afro-American Studies M5.) Lecture, four hours; discussion, one hour; field trips. Analysis and interpretation of social organization of black communities, with focus on origins and development of black communities, competing theories and research findings, defining characteristics and contemporary issues. Letter grading.

10. Social Thought and Origins of Sociology. (5) Lecture, three hours; discussion, two hours. Introduction to history of social thought, with special emphasis on theoretical precursors to development of discipline of sociology. Exposition and analysis of selected social theorists and concepts, especially from the 17th to 19th centuries. Letter grading.

20. Introduction to Sociological Research Methods. (5) Lecture, three hours; discussion, one hour. Introduction to methods used in contemporary sociological research, with focus on issues of research design, data collection, and analysis of data. Fieldwork may be required. Letter grading.

24. Conversation and Society. (4) Lecture, three hours. Examination of social norms that organize conversational interaction in everyday life. Consideration of relationship between conversation and other institutions in society. P/NP or letter grading.

88A-88Z. Lower Division Seminars. (1 each) Seminar, one hour. Limited to 15 freshmen/sophomores. Variable topics of current sociological interest. Consult *Schedule of Classes* or "Department Announcements" for topics and instructors. P/NP grading.

Upper Division Courses

101. Development of Sociological Theory. (5) Lecture, three hours; discussion, one hour. Comparative survey of basic concepts and theories in sociology from 1850 to 1920. P/NP or letter grading.

102. Contemporary Sociological Theory. (5) Lecture, three hours; discussion, one hour. Prerequisite: course 101. Critical examination of significant theoretical formulations from 1920 to the present. P/NP or letter grading.

106A. Field Research Methods I. (6) Lecture, two hours; discussion, two hours; fieldwork, eight to 10 hours. Research practicum in which students write field notes on their experiences in and observations of intensive internship field placement. Readings focus on fieldwork roles and relations, observing and describing, writing field notes, field interviewing, ethical issues, and preliminary data analysis. Fieldwork and extensive field notes required. Letter grading.

106B. Field Research Methods II. (6) Lecture, two hours; discussion, two hours; fieldwork, 10 hours. Prerequisite: course 106A. Collection and analysis of both field notes and unstructured interview data from student field placement. Use of techniques of qualitative data analysis, including qualitative coding, analytic memoing, and grounded theory methods, to analyze these materials and to write ethnographic paper. Letter grading.

110. Sociohistorical Methods. (4) Lecture, three hours; discussion, one hour. Designed for juniors/seniors. General problems of scientific abstraction, generalization, inference, and verification and particular problems of historical specification, comparison, and counterfactual reasoning in constructing and testing replicable explanation of historical event. P/NP or letter grading.

111. Social Networks. (4) Lecture, three hours; laboratory, one hour. Analysis of how social networks create social structure, how social actors utilize them, and their unexpected effects. Topics include job

search, firm efficiency, and social movements. Visualization programs, computer simulations, and research project. P/NP or letter grading.

112. Introduction to Mathematical Sociology. (4) Lecture, three hours; laboratory, one hour. Prerequisites: Mathematics 2, 3A (course whose content includes introductions to probability theory, matrix algebra, and differential and integral calculus), Statistics 10. Mathematical treatment of several sociological phenomena, such as occupational mobility, population growth, organizational structure, and friendship patterns, each covered in some detail, including initial development and subsequent evaluation and modification (emphasizing both deductive and computational aspects of mathematics). Letter grading.

113. Statistical and Computer Methods for Social Research. (4) Lecture, three hours; laboratory, one hour. Prerequisite: Statistics 10. Continuation of Statistics 10, covering more advanced statistical techniques such as multiple regression, analysis of variance, or factor analysis. Content varies. Students learn how to use computer and write papers analyzing prepared data sets. P/NP or letter grading.

114A-114B. Introduction to Scientific Sociology. (4-4) Lecture, three hours; discussion, one hour. How to make testable arguments about social reality and how to test those arguments in context of study of social stratification, and ethnic and gender inequality. Introduction to elementary, robust analytic tools. P/NP or letter grading.

M115. Environmental Sociology. (4) (Same as Environment M133.) Lecture, three hours; discussion, one hour. Relationship between society and environment. Analysis in detail of interrelations between social factors (such as class, race, gender, and religion) and environmental factors (such as pollution, waste disposal, sustainability, and global warming). P/NP or letter grading.

116. Social Demography. (4) Lecture, three hours; discussion, one hour. Studies of past, present, and future trends in population growth. Sociological theories of causes and consequences of population growth and redistribution. Emphasis on correlates of fertility, mortality, and migration. P/NP or letter grading.

117. Family Demography. (4) Lecture, three hours; discussion, one hour. Examination of demographic behaviors, such as marriage, divorce, and childbearing, associated with family and household organization. Sociological approach to understanding causes and consequences of trends and differentials in family formation and dissolution. P/NP or letter grading.

M118. Simulating Society: Exploring Artificial Communities. (5) (Same as Honors Colloquium M148.) Seminar, three hours; computer laboratory, one hour. Examination of social behavior through computer simulations of behavior in artificial communities. P/NP or letter grading.

119. Primate Societies. (4) Lecture, three hours; discussion, one hour. Limited to juniors/seniors. Selected topics on diverse behaviors and cultural forms of primate cousins, with special focus on baboons, chimpanzees, and gorillas. Examination of primate socioecology, sexual competition, demography and kinship, politics, communication, and interactions within and between groups. Implications for our lives as human primates. P/NP or letter grading.

M124A-M124B. Conversational Structures I, II. (4-4) (Same as Communication Studies M144A-M144B.) Lecture, three hours; discussion, one hour. P/NP or letter grading. **M124A.** Introduction to some structures that are employed in organization of conversational interaction, such as turn-taking organization, organization of repair, and some basic sequence structures with limited expansions. **M124B.** Prerequisite: course M124A. Consideration of some more expanded sequence structures, story structures, topical sequences, and overall structural organization of single conversations.

CM125. Talk and Social Institutions. (4) (Same as Communication Studies M125.) Lecture, four hours; discussion, one hour. Designed for juniors/seniors. Practices of communication and social interaction in

number of major institutional sites in contemporary society. Setting varies but may include emergency services, police and courts, medicine, news interviews, and political oratory. Concurrently scheduled with course C258. P/NP or letter grading.

126. Study of Norms. (4) Lecture, three hours; discussion, one hour. Properties of norms, of normatively governed conduct, of lay and professional methods for describing, producing, using, and validating norms in contrasting settings of socially organized activities; relevance of these properties for programmatic problems of analytic sociology. Fieldwork required. P/NP or letter grading.

127. Mind and Society. (4) Lecture, two and one-half hours; discussion, one hour. Requisite: course 1. Study of social production of modes of thought and forms of knowledge. Study of ways in which bodies of knowledge and cognitive styles are produced, used, and transformed in everyday, organizational, and extraordinary contexts. P/NP or letter grading.

128. Sociology of Emotions. (4) Lecture, three hours; discussion, one hour. Requisite: course 1. Designed for juniors/seniors. Sociological theories and explanations of social conditions shaping and producing emotional experiences; effects of individual expression of emotions on social conditions; relations between thought, sensations, and emotions; self and emotions; social construction of emotions. P/NP or letter grading.

129. Sociology of Time. (4) Lecture, three hours; discussion, one hour. Conceptualizations of time seen from scientific, philosophical, historical, and sociological perspectives; "cyclical" and "linear" time in primitive, ancient, and medieval societies; ritual, the sacred, and experience of the eternal; structuring of urban, modern, and postmodern societies by clock, calendar, and schedule; future value orientation and notion of progress; time, labor, and social domination. P/NP or letter grading.

130. Self and Society. (4) Lecture, three hours; discussion, one hour. Examination of social processes shaping experience, definition, and enactment of self and personal identity. P/NP or letter grading.

132. Social Psychology: Sociological Approaches. (4) Lecture, three hours; discussion, one hour. Survey of contribution of sociologists to theory and research in social psychology, including theories of social control; conformity and deviation; reference groups; and interaction process. P/NP or letter grading.

133. Collective Behavior. (4) Lecture, three hours; discussion, one hour. Requisite: course 1. Designed for juniors/seniors. Characteristics of crowds, mobs, publics, social movements, and revolutions; their relation to social unrest and their role in developing and changing social organization. P/NP or letter grading.

134. Culture and Personality. (4) Lecture, three hours; discussion, one hour. Requisite: course 1. Designed for juniors/seniors. Theories of relation of variations in personality to culture and group life, in primitive and modern societies, and influence of social role on behavior. P/NP or letter grading.

135. Group Processes. (4) Lecture, three hours; discussion, one hour. Systematic study of formation, structure, and functioning of groups; analysis of group processes and group products from variety of theoretical viewpoints; implications of various research techniques. P/NP or letter grading.

M138. Death, Suicide, and Trauma. (4) (Same as Psychology M163.) Lecture, three hours; discussion, one hour. Sociological analysis of incidence of violent death. Suicide is eighth leading cause of death in U.S. and third leading cause for young people aged 15 to 24. Both kinds of violent deaths are often dismissed as extreme psychopathology, reflecting individual mental health issues. Sociologists argue that suicide and homicide are social facts. Suicide and homicide do not occur randomly in society but are stratified according to social factors such as age, gender, race, sexual orientation, and class. Analysis of strength of this sociological argument and evaluation of explanatory potential of different theories to make sense of violent death, paying particular attention to forensic and medicolegal system to determine suicide and solve homicides. Review of historic and contemporary studies to examine

how research and conceptualizations of suicide and homicide have changed, as well as social responses to these phenomena. P/NP or letter grading.

141A. Migration and Labor in Mexico-U.S. Context. (5) Seminar, 20 hours. Mexico-U.S. migration is largest and oldest continuous international population flow of contemporary world. In recent decades, prompted by swift economic transformations, rural and urban Mexicans from every corner of Mexico have joined this migratory flow, settling well beyond southwestern region and into far-reaching areas of U.S. interior. Migration is binding U.S. and Mexico stronger than ever, putting this complex and multilayered phenomena at top of bilateral agenda. Examination of sociological dynamics of international migration and labor as they apply to Mexico-U.S. context, including demographic, political, and economic dynamics of migration, economic and social infrastructures that support cross-border mobility, and connections of migration with binational, national, regional, and local labor markets. Comparative insights to contrast this flow with other contemporary population streams. Offered in summer only. Letter grading.

141B. Migration and Labor in Mexico-U.S. Context: Research Seminar. (5) Seminar, 10 hours; fieldwork, 10 hours. Development of qualitative micro-study and research paper on migration and labor in Mexico-U.S. context. Research topic of interest to be selected so students become familiar with commonly employed qualitative methods of research. Designed to help students understand basics of methodological reasoning, how to formulate research questions, and how to frame and investigate one particular issue related to migration and labor. How to make ethical decisions about conducting research. Development of student abilities as researchers by conducting secondary and primary research culminating in final research paper to be presented to faculty members and peers. Offered in summer only. Letter grading.

M142. Healthcare in Transitional Communities. (4) (Same as Public Health M151.) Lecture, three hours; discussion, one hour. Analysis of social, cultural, economic, and political processes affecting organization and accessibility of healthcare in transitional and disadvantaged communities. Fieldwork required. Letter grading.

143. Human Health and Society. (4) Lecture, three hours; discussion, one hour. Requisites: courses 1, 20, 101. Exploration of long-run historical trends in relationship between human health and social organization, drawing on historical, anthropological, demographic, and sociological concepts, theories, and data. P/NP or letter grading.

145. Sociology of Deviant Behavior. (4) Lecture, three hours; discussion, one hour. Examination of leading sociological approaches to study of deviation and general survey of major types of deviation in American society. P/NP or letter grading.

C146. Sociology of Interpersonal Conflict. (4) Lecture, three hours; discussion, one hour. Origins, development, and outcomes of interpersonal conflicts and troubles that arise in close relationships, households, workplaces, and public places in contemporary societies. Concurrently scheduled with course C229A. Letter grading.

147A. Sociology of Crime. (4) Lecture, three hours; discussion, one hour. Sociological theories of social origins, organization, and meanings of crime and criminal behaviors. P/NP or letter grading.

147B. Sociology of Criminal Justice. (4) Lecture, three hours; discussion, one hour. Examination of structures and routine decision-making processes of key criminal justice institutions, including police, courts, probation and parole, jails and prisons. P/NP or letter grading.

148. Sociology of Mental Illness. (4) Lecture, three hours; discussion, one hour. Analysis of major sociological and social psychological models of madness. Study of social processes involved in production, recognition, labeling, and treatment of mental illness. P/NP or letter grading.

149. Youth, Trouble, and Juvenile Justice. (4) Lecture, three hours; discussion, one hour. Examination of processes through which youth become involved in juvenile justice system. Analysis of this system as people-processing and people-changing institution as context for considering critical issues in juvenile justice. P/NP or letter grading.

M150. Sociology of Aging. (4) (Same as Gerontology M150.) Lecture, three hours; discussion, one hour. Study of sociological processes shaping definition, experience, and response to aging in contemporary society. Topics include race, class, and gender in aging over life course; interpersonal relations and social worlds of aged; caregiving relations and institutions; professions concerned with aged and aging. Letter grading.

151. Comparative Immigration. (4) Lecture, three hours; discussion, one hour. Survey of immigration of Europeans, Asians, and Hispanics to the U.S. since the mid-19th century. Overview of immigration experience on ethno-racial groups that migrated voluntarily to this country, with emphasis on immediate postimmigration settlement. P/NP or letter grading.

152. Comparative Acculturation and Assimilation. (4) Lecture, three hours; discussion, one hour. Requisite: course 151. Comparison of acculturation and assimilation of Europeans, Africans, Mexicans, and Asians in the U.S., with emphasis on long-term cultural consequences of immigration. P/NP or letter grading.

M153. Chinese Immigration. (4) (Same as Asian American Studies M130C.) Lecture, three hours; discussion, one hour. Survey of sociological studies of Chinese immigration, with focus on international context, organization, and institutions of Chinese America and its interactions with social environment. P/NP or letter grading.

154. Race and Ethnicity: International Perspectives. (4) Lecture, three hours; discussion, one hour. Not open to freshmen. Role of race and ethnicity in political, economic, and social lives of nations other than the U.S. P/NP or letter grading.

M155. Latinos in U.S. (4) (Same as Chicana and Chicano Studies M155.) Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Exploration of history and social conditions of Latinos in Los Angeles as well as nationally, with particular emphasis on their location in larger social structure and on comparisons with other minority groups. Topics include migration, family, education, and work issues. P/NP or letter grading.

156. Race and Ethnicity in American Life. (4) Lecture, three hours; discussion, one hour. Role of race and ethnicity in the U.S., including interplay between racial and ethnic structures and meanings. Special attention to comparison of African American and European American experiences and to transformation of Asian American and Latino communities and the nation generally, wrought by renewal of mass migration in second half of the 20th century. P/NP or letter grading.

157. Social Stratification. (4) Lecture, three hours; discussion, one hour. Analysis of American social structure in terms of evaluational differentiation. Topics include criteria for differentiation, bases for evaluation, types of stratification, composition of strata and status systems, mobility, consequences of stratification, and problems of methodology. P/NP or letter grading.

158. Urban Sociology. (4) Lecture, three hours; discussion, one hour. Description and analysis of urbanization and urbanism in the U.S. and world. P/NP or letter grading.

159. Comparative Studies of Jewish Communities in the U.S. and Abroad. (4) Lecture, three hours; discussion, one hour. History, distribution, structure, and functioning of major Jewish communities, with particular emphasis on North America and Israel. Interrelationships and sources of conflict between Jews and Gentiles in Western countries. More generally, economic and social integration of Diaspora Jewish communities. Fieldwork may be required. P/NP or letter grading.

160. Intergroup Conflict and Prejudice. (4) Lecture, three hours; discussion, one hour. Study of causes and consequences of group conflict, with em-

phasis on majority/minority relations, prejudice, and discrimination. Special attention to alternative sociological and psychological theories of prejudice; effects of minority status on individuals; and possibilities for attitude and behavior change. P/NP or letter grading.

M161. Comparative American Indian Societies. (4) (Same as American Indian Studies M161.) Lecture, three hours. Prerequisite: course 1 or American Indian Studies M10. Comparative and historical study of political, economic, and cultural change in indigenous North American societies. Several theories of social change, applied to selected case studies. Letter grading.

M162. Sociology of Gender. (4) (Same as Women's Studies M162.) Lecture, three hours; discussion, one hour. Prerequisite: course 1 or Women's Studies 10. Examination of processes by which gender is socially constructed. Topics include distinction between biological sex and sociological gender, causes and consequences of gender inequality, and recent changes in gender relations in modern industrial societies. P/NP or letter grading.

M163. Gender and Work. (4) (Same as Women's Studies M163.) Lecture, three hours. Prerequisite: course 1 or Women's Studies 10. Exploration of relationship of gender to work, concentrating on the U.S. experience but also including some comparative material. Particular emphasis on analysis of causes and consequences of job segregation by gender and of wage inequality. P/NP or letter grading.

M164. Politics of Reproduction. (4) (Same as Women's Studies M164.) Lecture, three hours; discussion, one hour. Title refers to intersection between politics and life cycle. Topics include social construction of gender and population, reproductive issues, politicization of mothers, motherhood, and mothering, surrogacy, and new reproductive technologies. Letter grading.

M165. Sociology of Race and Labor. (4) (Same as Afro-American Studies M165 and Labor and Workplace Studies M165.) Lecture, three hours; discussion, one hour. Limited to juniors/seniors. Exploration of relationship between race/ethnicity, employment, and U.S. labor movement. Analysis of underlying racial divisions in workforce and how they evolved historically. Consideration of circumstances under which workers and unions have excluded people of color from jobs and unions, as well as circumstances under which workers and unions have organized people of color into unions in efforts to improve their wages and working conditions. Impact of globalization on these dynamics. P/NP or letter grading.

M166. Women in Socialist and Post-Socialist States. (4) (Same as Women's Studies M166.) Lecture, three hours; discussion, one hour. Exploration of diverse aspects of women's lives in socialist and post-socialist states. Although transition from socialism occurs differently, gender differences are everywhere central to democratization and marketization. Discussion of ways in which state policies affect women. Letter grading.

168. Organizations and Society. (4) Lecture, three hours; discussion, one hour. Sociological analysis of organizations and their social environment. Introduction to basic theories, concepts, methods, and research on behavior of organizations in society. P/NP or letter grading.

169. Law and Society. (4) Lecture, three hours; discussion, one hour. Specific topics may include law in preindustrial and industrialized societies, legalization of contemporary social relations, participants' experiences of legal processes, lay perceptions of justice, social movements toward equal justice, roles of lawyers and judges, social impact of court decisions. P/NP or letter grading.

170. Medical Sociology. (4) Lecture, three hours; discussion, one hour. Prerequisite: course 1. Provides majors in Sociology and other social sciences, as well as students preparing for health sciences careers, with understanding of health-seeking behavior and interpersonal and organizational relations that are involved in receipt and delivery of health services. P/NP or letter grading.

171. Occupations and Professions. (4) Lecture, three hours; discussion, one hour. Description and analysis of representative occupations and professions, with emphasis on contemporary U.S. P/NP or letter grading.

172. Entrepreneurship. (4) Lecture, three hours; discussion, one hour. Prerequisite: course 1. Description and analysis of entrepreneurship, with special reference to historical origins, ideology, international comparisons, women and ethnic minority participation, legal and illegal forms, public and private auspices. P/NP or letter grading.

173. Economy and Society. (4) Lecture, three hours; discussion, one hour. Sociology of economic life, with emphasis on principal economic institutions of the U.S. P/NP or letter grading.

M174. Sociology of the Family. (4) (Same as Women's Studies M174.) Lecture, three hours; discussion, one hour. Theory and research dealing with modern family, its structure, and functions, including historical changes, variant family patterns, family as an institution, and influence of contemporary society on the family. P/NP or letter grading.

M175. Sociology of Education. (5) (Same as Education M108.) Lecture, four hours; discussion, one hour. Study of how U.S. educational system both promotes socioeconomic opportunities and maintains socioeconomic inequalities: historical and theoretical perspectives on role of education in U.S. society; trends in educational attainment; ways in which family background, class, race, and gender affect educational achievement and attainment; stratification between and within schools; effects of education on socioeconomic attainment, family, health, attitudes, and social participation; educational policies to improve school quality and address socioeconomic inequalities. Letter grading.

M176. Sociology of Mass Communication. (4) (Same as Communication Studies M147.) Lecture, four hours; discussion, one hour (when scheduled). Studies in relationship between mass communication and social organization. Topics include history and organization of major media institutions, social forces that shape production of mass media news and entertainment, selected studies in media content, and effects of media on society. P/NP or letter grading.

M178. Sociology of Caribbean. (4) (Same as Afro-American Studies M178.) Lecture, three hours; discussion, one hour. Limited to juniors/seniors. Historical sociology of Caribbean, with emphasis on colonialism and decolonization, development and underdevelopment, race-making institutions and evolution of race relations, nationalism and migration. P/NP or letter grading.

179. Comparative East Asian Societies. (4) Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Introductory and comparative survey of traditional societies of East Asia, including China, Japan, Korea, and Vietnam, with focus on dynamic interactions between culture, state, and society in process of change. P/NP or letter grading.

180A-180Z. Special Topics in Sociology. (4 each) Lecture, three hours; discussion, one hour. Limited to juniors/seniors. Study of selected topics of sociological interest. Consult *Schedule of Classes* for topics and instructors. May be repeated for credit and may be applied as elective units toward Sociology major. P/NP or letter grading.

181. State and Society in China. (4) Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Thematic overview of post-1949 society and politics in China, with emphasis on long-term evolution of China's state and society from 1949 to present. P/NP or letter grading.

182. Political Sociology. (4) Lecture, three hours; discussion, one hour. Contributions of sociology to study of politics, including analysis of political aspects of social systems, social context of action, and social bases of power. P/NP or letter grading.

183. Comparative and Historical Sociology. (4) Lecture, three hours; discussion, one hour. Prerequisite: course 1. Survey of central themes of comparative and historical studies in sociology. Various aspects of development of modern society, including development of nation-state, emergence of capitalism, industrialization, and population growth. Variation in contemporary society, viewed from variety of theoretical perspectives. P/NP or letter grading.

184. Social Change. (4) Lecture, three hours; discussion, one hour. Study of patterns of social change, resistance to change, and change-producing agencies and processes. P/NP or letter grading.

185. American Society. (4) Lecture, three hours; discussion, one hour. Analysis of major institutions in the U.S. in historical and international perspective, with emphasis on topics such as industrialization, work, state, politics, community, family, religion, and American culture. Theories of social change, conflict, and order applied to case of the U.S. P/NP or letter grading.

186. Latin American Societies. (4) Lecture, three hours; discussion, one hour. Social structure and social conflict in Latin America, with special attention to racial and class structures and dilemmas of economic and political development. Country and specific focus varies each term. P/NP or letter grading.

191A. Undergraduate Seminar: Self and Identity. (5) Seminar, three hours. Limited to junior/senior Sociology majors. Examination of cultural, historical, and interactional contexts shaping definition, enactment, and experience of self. Reading, discussion, and development of culminating project. Letter grading.

191B. Undergraduate Seminar: Sociology of Humor and Laughter. (5) Seminar, three hours. Limited to junior/senior Sociology majors. Selected topics. Reading, discussion, and development of culminating project. Letter grading.

191C. Undergraduate Seminar: Money and Emotions. (5) Seminar, three hours. Limited to junior/senior Sociology majors. Selected topics. Reading, discussion, and development of culminating project. Letter grading.

191D. Undergraduate Seminar: Sociology of Development. (5) Seminar, three hours. Limited to juniors/seniors. Taught in Spanish. Selected topics on development in Third World from global perspective. Reading, discussion, and development of culminating project. Letter grading.

M191DC. CAPPP Washington, DC, Research Seminars. (8) (Same as History M191DC and Political Science M191DC.) Seminar, three hours; laboratory, 24 hours. Limited to CAPPP Program students. Seminars for undergraduate students in Center for American Politics and Public Policy's program in Washington, DC. Focus on development and execution of original empirical research based on experiences from Washington, DC-based field placements. Study of variety of qualitative methods (observation, interviewing, etc.), with comparison to quantitative analysis. Examination of features of solid and significant research; intensive writing. Letter grading.

191E. Undergraduate Seminar: Population Growth Models. (5) Seminar, three hours. Limited to juniors/seniors. Selected topics. Reading, discussion, and development of culminating project. Letter grading.

191F. Undergraduate Seminar: Sociology of Globalization. (5) Seminar, three hours. Limited to juniors/seniors. Great extension of social relations across globe has occurred over last 50 years. What are causes and mechanisms of this process, how far has it transformed human societies, and how far will it go in future? Economic, cultural, political, and military aspects of globalization, with focus on extent to which global expansion of capitalism, nation-state system, and American imperialism reinforce or undercut each other, producing new lines of division and conflict across world. Reading, discussion, and development of culminating project. Letter grading.

191H. Honors Seminars: Sociology. (4) Seminar, three hours. In-depth introduction to process of producing scholarly sociological research for students who intend to write undergraduate thesis for departmental honors. Letter grading.

191I. Undergraduate Seminar: Health and Inequality. (5) Seminar, three hours. Limited to juniors/seniors. During past century, social inequalities in health and survival were widening in the U.S. as in other developed societies. Broad overview of these trends and their causes. Reading, discussion, and development of culminating project. Letter grading.

191J. Undergraduate Seminar: Mexican Society. (5) Seminar, three hours. Selected topics on contemporary Mexican society and vital transformations it has undergone in recent years. Reading, discussion, and development of culminating project. Letter grading.

191K. Undergraduate Seminar: Cigarettes and Western Civilization—Sociological History of Smoking. (5) Seminar, three hours. Limited to juniors/seniors. Use of history of tobacco and cigarette smoking to explore important themes in sociology, history, and culture. History of tobacco from its roots in Native American culture, its contribution to foundation of European colonies in New World, its cultural incorporation in western Europe, its role in rise of industrial way of life and health consequences, and its demise as legitimate soft drug for modern urban people. Letter grading.

191L. Undergraduate Seminar: Environmental Justice and Sustainability. (5) Seminar, three hours. Limited to juniors/seniors. Sociological approach to study of environmental issues and problems. Topics include ecopolitics and ecofeminism, environmental racism, global environmental change, sustainable development, and society-environment interface. Reading, discussion, and development of culminating project. Letter grading.

191M. Undergraduate Seminar: Social Ecology. (5) Seminar, three hours. Limited to juniors/seniors. Fundamentals of sociological approach to social ecology, also known as human ecology. Study of adaptation of population to its environment. Topics include density, maintaining personal space, space and territoriality, and effects of environment on humans. Reading, discussion, and development of culminating project. Letter grading.

C191N. Undergraduate Seminar: Urban and Suburban Sociology. (5) (Formerly numbered 191N.) Seminar, three hours. Limited to juniors/seniors. History and present condition of cities and suburbs in America, with stress on global cities such as New York and Los Angeles, and comparisons to London and Shanghai. Process of suburbanization as it began in early 19th century and still continues. Analysis of city politics, house and architectural styles, crime, urban terror, public housing and ghettos, segregation and integration of neighborhoods, question of gentrification, immigration, urban culture (especially art, museums, and movie and music industries), and environmentalism. Concurrently scheduled with course C297. Letter grading.

191NY. Undergraduate Seminar: Urban and Suburban Sociology in New York City. (5) Seminar, eight hours. Limited to students in summer UCLA Travel Study Program. Cutting-edge urban issues in country's largest city, including New York's attempt to plan for city of 9.2 million, rebuilding of World Trade Center, Robert Moses (New York's master builder), urban economic development, green New York, transportation systems, urban politics, house and architectural styles, including New York's famous skyscrapers, historic preservation, crime and police departments, ghetto, education, urban poor, public housing, and search for affordable housing. Offered in summer only. Letter grading.

191O. Undergraduate Seminar: Ideals of Love in Historical Perspective. (5) Seminar, three hours. Limited to juniors/seniors. Exploration of historically specific understandings of love. Reading, discussion, and development of culminating project. Letter grading.

191P. Undergraduate Seminar: Politics of Reproduction. (5) Seminar, three hours. Limited to juniors/seniors. Social and human reproduction is global policy issue. Government efforts to influence reproduction are important feature of modern state: political intervention into private life, intimacy, and sexuality. Exploration of politics of reproduction—intersection between politics and life cycle or between public sphere and private lives—and coverage of broad range of issues addressing prevention and promotion of reproduction from historical-comparative approach. Reading, discussion, and development of culminating project. Letter grading.

191Q. Undergraduate Seminar: Communication in Medical Care. (5) Seminar, three hours. Limited to juniors/seniors. Sociology dimensions of patient care in primary care context. Use of microsociological methods to examine main facets of American primary care medical visits, including detailed analysis of interactional conduct of those visits and development of microanalytical constructs into quantitative measures. Emphasis on direct contact with empirical materials and development of observational and analytic skills. Reading, discussion, and development of culminating project. Letter grading.

191R. Undergraduate Seminar: Cultural Sociology. (5) Seminar, three hours. Limited to juniors/seniors. Introduction to classic theoretical approaches and contemporary developments in study of social worlds dedicated to creating and handling cultural institutions such as literature, journalism, film/television, art, architecture, music, dance, and museums. Discussion of such issues as contemporary validity of distinction between high and popular/low culture, relationship of mainstream and marginal culture, how culture expresses and reinforces social inequality, organizational context of culture, and how people express and decipher meaning in cultural objects. Reading, discussion, and development of culminating project. Letter grading.

191S. Undergraduate Seminar: Sociology of Gender and Sexuality. (5) Seminar, three hours. Limited to juniors/seniors. Sexuality is important site for enactment of gender and gender identity. Sexual preference and sexual behavior can also form basis for social identity, repression, discrimination, and privilege, independent of gender. Social factors such as social class, ethnicity, generation, and networks shape our sexual practices and choice of partners. Reading and writing about variety of original sociological, historical, and anthropological texts and development of culminating project. Letter grading.

191T. Undergraduate Seminar: War and Society. (5) Seminar, three hours. Limited to juniors/seniors. Study of relationship between society's military and its social organization in general, with particular attention to shock-based civic militarism characteristic of the West. Topics include honor, discipline, bureaucracy, conscription, logistics, total war, guerilla war, terrorism, and counterinsurgency. Reading, discussion, and development of culminating project. Letter grading.

191V. Variable Topics Research Seminars: Sociology. (5) Seminar, three hours. Limited to juniors/seniors. Study of selected topics of sociological interest. Reading, discussion, and development of culminating project. Consult *Schedule of Classes* for topics and instructors. May be repeated for credit and may be applied as elective units toward Sociology major. Letter grading.

194. Research Group Seminars: Sociology. (2) Seminar, two hours. Designed for undergraduate students who are part of research group. Discussion of research methods and current literature in field. May be repeated for credit. P/NP grading.

M194DC. CAPP Washington, DC, Research Seminars. (4) (Same as History M194DC and Political Science M194DC.) Seminar, three hours. Limited to CAPP Program students in Winter Quarter. Seminars for undergraduate students in Center for American Politics and Public Policy's program in Washington, DC. Focus on development and execution of original empirical research based on experiences from Washington, DC-based field placements. Study of va-

riety of qualitative methods (observation, interviewing, etc.), with comparison to quantitative analysis. Examination of features of solid and significant research; intensive writing. Letter grading.

195. Community or Corporate Internships in Sociology. (4) Tutorial, three hours. Limited to juniors/seniors. Internship in community agency or business to be supervised jointly by Center for Community Learning and faculty adviser. Students meet on regular basis with instructor and provide weekly reports of their experience. Normally only 4 units of internship are allowed. Individual contract with supervising faculty member required. P/NP or letter grading.

M195DC. CAPP Washington, DC, Internships. (4) (Same as History M195DC and Political Science M195DC.) Tutorial, four hours. Limited to junior/senior CAPP Program students. Internships in Washington, DC, through Center for American Politics and Public Policy. Students meet on regular basis with instructor and provide periodic reports of their experience. Individual contract with supervising faculty member required. P/NP grading.

198A-198B-198C. Honors Research in Sociology. (4-4-4) Tutorial, one hour. Requisite: course 191H. Limited to sociology honors program students. May be repeated for credit. Individual contract required. Letter grading. **198A.** Design of research project to serve as student's honors thesis. Research proposal, detailed bibliography, and regular meetings with sponsoring faculty member required. **198B.** Requisite: course 198A. Continuation of work initiated in course 198A. Development of honors thesis in consultation with instructor. **198C.** Requisite: course 198B. Completion of honors thesis under direct supervision of honors faculty director.

199. Directed Research in Sociology. (2 to 4) Tutorial, one hour. Preparation: 3.0 grade-point average in major. Requisites: courses 1, M18. Limited to junior/senior Sociology majors. Independent intensive study designed for students who want to do research under guidance of faculty mentor. Scheduled meetings to be arranged between faculty member and student. Culminating paper or project required. May be repeated for maximum of 8 units, with no more than 4 in any one term. Individual contract required; see undergraduate counselor. P/NP or letter grading.

Graduate Courses

201A-201B-201C. Proseminars: Sociology. (2-2-2) Seminar, two hours every other week. Required of first-year graduate sociology students. Introduction to range of theoretical and research interests represented by department faculty members. S/U grading.

202A-202B. Theory and Research in Sociology. (4-4) Lecture, two hours; discussion, two hours. Required of first-year graduate sociology students. Examination of interrelations of theory, method, and substance in exemplary sociological works, with analytical and skills-centered orientation. In Progress (202A) and S/U or letter (202B) grading.

204. Topics in Sociological Theorizing. (4) Seminar, four hours. Examination of selected issues and problems in classical or contemporary sociological theory. S/U or letter grading.

205. Family and Social Change. (4) Lecture, three hours. Examination of sources of change in family and household organization, with major focus on relationships among economic institutions, family structure, and content of family life. Consideration of concepts, theories, and data about kinship. S/U or letter grading.

M206. Understanding Fertility: Theories and Methods. (4) (Same as Community Health Sciences M222.) Lecture, three hours. Preparation: one formal or social demography course. Requisite: Biostatistics 100A. Application of demographic theories and methods to describe fertility trends and differentials and social and proximate determinants of fertility, with emphasis on understanding key proximate determinants. For advanced students interested in population, demography of health, and social demography. Letter grading.

208A-208B. Social Network Methods. (4-4) Lecture, three hours; laboratory, one hour. Prerequisites: courses 210A, 210B. Techniques for measuring characteristics of networks and positions in networks. Centrality of positions, centralization and density of networks, structural equivalence, cliques. Readings of exemplars of network research. Computer programs. S/U or letter grading.

210A-210B. Intermediate Statistical Methods I, II. (4-4) Lecture, three hours; discussion, two hours. Intermediate statistical methods using computers: probability theory, sampling distributions, hypothesis testing, interval estimation, multiple regression and correlation, experimental design, analysis of variance and covariance, contingency tables, sampling theory. S/U or letter grading.

210C. Intermediate Statistical Methods III. (4) Lecture, four hours. Prerequisite: course 210B. Survey of advanced statistical methods used in social research, with focus on problems for which classical linear regression model is inappropriate, including categorical data, structural equations, longitudinal data, incomplete and erroneous data, and complex samples. S/U or letter grading.

211A-211B. Comparative and Historical Methods. (4-4) Lecture, three hours. In Progress (211A) and S/U or letter (211B) grading. **211A.** Strategies of Research and Conceptualization. Topics include relationship of theory and fact to social sciences, logic of comparative and historical analysis, and substantive paradigms of comparative and historical analysis. Reading involves methodological examination of basic works in representative problem areas. **211B.** Research Techniques. Prerequisite: course 211A. Topics include problem of evidence, quantitative and qualitative data. Techniques of data analysis, including use of manuscript census, content analysis, collective biography, and secondary analysis.

212A-212B. Quantitative Data Analysis. (4-4) Lecture, three hours. Prerequisites: courses 210A, 210B. Course 212A is enforced prerequisite to 212B. Analysis and interpretation of primarily nonexperimental quantitative data, with focus on sample survey and census data. Extensive practice at utilizing statistical methods encountered in previous courses, culminating in term paper in style of *American Sociological Review* or similar journal article. Topics include simple tabular analysis, log-linear analysis, ordinary least squares regression, robust regression, binomial and multinomial logistic regression, and scale construction. Logic of analysis and problems of statistical inference, including diagnostic procedures and methods for handling complex sample survey designs. In Progress (212A) and S/U or letter (212B) grading.

212C. Study Design and Other Issues in Quantitative Data Analysis. (4) Lecture, three hours. Designed for graduate and undergraduate students who have had some exposure to statistics and quantitative methods. Introduction to study design, including experimental, longitudinal, cohort, time-series designs, contextual, and other designs. Discussion of suitability of various design classes for specific analytic goals, as well as their comparative strengths and weaknesses. S/U or letter grading.

M213A. Introduction to Demographic Methods. (4) (Same as Biostatistics M208, Community Health Sciences M208, and Economics M208.) Lecture, four hours. Preparation: one introductory statistics course. Introduction to methods of demographic analysis. Topics include demographic rates, standardization, decomposition of differences, life tables, survival analysis, cohort analysis, birth interval analysis, models of population growth, stable populations, population projection, and demographic data sources. Letter grading.

M213B. Applied Event History Analysis. (4) (Same as Statistics M213.) Lecture, three hours. Preparation: exposure to binary response models. Prerequisites: courses 210A, 210B. Introduction to regression-like analyses in which outcome is "time to event." Topics include logit models for discrete-time event history models; piecewise exponential hazards models; proportional hazards; nonproportional hazards; parametric survival models; heterogeneity; multilevel survival models. S/U or letter grading.

216A-216B. Survey Research Design. (4-4) Lecture, 90 minutes; discussion, 90 minutes. Prerequisite: course 210A. History of survey method; facet metatheory and concept formation; questionnaire and item design; scales, indices typologies; data collection—planning and management; network, snowball, and experience sampling; multistage probability sampling, stratification and clustering. Students participate in survey research project. Letter grading.

217A. Analyzing Ethnographies. (4) Seminar, three hours. Analysis of ethnographic monographs. S/U or letter grading.

217B-217C. Ethnographic Fieldwork. (4-4) Seminar, three hours. Recommended prerequisite: course 217A. Theories and techniques of ethnographic fieldwork. Kinds of problems amenable to ethnographic approaches, methods, and techniques for doing fieldwork, and ethnical problems involved in such research. In Progress (217B) and letter (217C) grading.

220. Self and Society. (4) Lecture, three hours. Examination of social and cultural processes shaping definition and experience of the self, embodied interactional practices through which the self is constructed in everyday and institutional contexts, formation and transformation of self during life course, and construction of collective identity. Letter grading.

222. Foundations of Ethnomethodological, Phenomenological, and Analytic Sociologies. (4) Lecture, three hours. Designed for graduate students. Basic issues, methods, and topics of ethnomethodological, phenomenological, conversation-analytic, and related varieties of inquiry. Central themes such as world of everyday life, problem of rationality, rules/norms and tacit knowledge, problem of social order, speaking and discourse, constitutive practices, and production of ordinary interaction in first part; guest presentations by affiliated faculty in second part. S/U or letter grading.

223. Phenomenological and Interactionist Perspectives on Selected Topics. (4) Lecture, three hours. Comparison of phenomenological and symbolic and perspectives by examining particular body of live or currently unresolved substantive issues. Topics vary; attention on development of phenomenological and interactionist thought on topic of concern, with special concern for ambiguities and divergences both within and between two approaches. When relevant, attention to logical and historical relations of phenomenology and interactionism of pragmatist, existentialist, and ordinary language philosophies. S/U or letter grading.

226A-226B. Introduction to Theory and Major Empirical Research in Social Demography. (4-4) Lecture, two hours; discussion, one hour. Prerequisite: course 210A. Survey and critical examination of population theories and related major empirical research. Emphasis on interrelation of cultural, socioeconomic, and demographic factors. Introduction to elementary demographic methods utilizing microcomputers. S/U or letter grading.

227. Sociology of Knowledge. (4) Lecture, three hours. Designed for graduate students. Survey of theories and research concerning social determinants of systems of knowledge and role of intellectual and artistic elites in Western societies. S/U or letter grading.

228. Critical Issues in Macrosociology. (4) (Formerly numbered 228A.) Lecture, three hours. Conceptual introduction to area of macrosociology in which exemplary works are read, studied for substance and methods, and critiqued in seminar and in written papers. S/U or letter grading.

C229A. Sociology of Interpersonal Conflict. (4) Lecture, three hours; discussion, two hours. Origins, development, and outcomes of interpersonal conflicts and troubles that arise in close relationships, households, workplaces, and public places in contemporary societies. Concurrently scheduled with course C146. Letter grading.

229B. People-Processing Institutions. (4) Lecture, three hours; discussion, two hours. Course C229A is not requisite to 229B. Theory and research analyzing operation and decision-making processes of variety

of people-processing institutions, including police, courts, schools, psychiatry, human service agencies, and medicine. Letter grading.

230A-230B. Comparative Ethnicity, Race, and Nationalism. (4-4) Seminar, three hours. Preparation for independent research in area of comparative ethnicity, race, and nationalism through close reading of key theoretical and empirical works. S/U or letter grading.

230C. Comparative Ethnicity, Race, and Nationalism. (4) Seminar, three hours. Introduction to comparative and historical sociology of race and ethnicity to demonstrate merits of double comparative approach to race, one that strives to be as comparative at level of theory (attending to relationship between race and other forms of social classification, including ethnicity and nationality) as it does at level of research. Exploration of cases from wide variety of countries, including Australia, Brazil, Colombia, Dominican Republic, Haiti, Mexico, modern China, modern Japan, Nazi Germany, Nicaragua, Rwanda, South Africa, Sudan, and U.S. S/U or letter grading.

232. Class, Politics, and Society. (4) Lecture, four hours. Nature of class structure and how it affects relation of class structure to politics and political power. Issue of salience of class versus other identities such as gender, age, race, and nationalism. Examination of contemporary "globalization" tendencies of capitalism. Letter grading.

233. Foundations of Political Sociology. (4) Lecture, three hours. Designed for graduate students. Survey of field of political sociology, oriented around critical themes in major theoretical traditions and contemporary exemplars. Special attention to competing perspectives on power, theory of state, and relationship of class structure to politics. S/U or letter grading.

234. Sociology of Development. (4) Seminar, three hours; discussion, one hour. Readings and discussion of theoretical, historical, and specific issues in sociology of development (e.g., world system theory, developmental state, import substitution industrialization, export promotion industrialization, neoliberalism in Latin America, new approaches). S/U or letter grading.

235. Theories of Ethnicity. (4) Lecture, one hour; discussion, two hours. Designed for graduate students. Examination of variety of theoretical approaches in understanding race and ethnicity in contemporary societies, with emphasis on recent debates among class analysis, pluralist, primordialist, and rational choice perspectives. Letter grading.

236A-236B-236C. International Migration. (4-4-4) Lecture, three hours. S/U or letter grading:

236A. (4) Lecture, three hours. Comprehensive overview of key current theoretical debates in study of international migration, with focus on exploration of possibilities of comparative (historical and cross-national) research program in field, linking North American, European, and other global experiences of immigration. S/U or letter grading.

236B. (4) Lecture, three hours. Further exploration of key current theoretical debates in study of international migration, with emphasis on exploring both theoretical debates of the field and empirical data and case studies on which those debates hinge, to encourage students to undertake research in the field. S/U or letter grading.

236C. (4) Lecture, three hours. Designed for students beginning or undertaking original research in field of international migration. Outside lectures, oral presentations of student projects, circulation of completed or draft student papers. S/U or letter grading.

237. Seminar: Theory and Research in Comparative Social Analysis. (2) Seminar, two hours. Designed for graduate students. Emphasis on one issue of particular importance for comparative analysis of capitalism and socialism, North America and Western Europe, developed capitalist and socialist countries and Third World, and implications for theory construction and social research. S/U grading.

M238. Feminist Theory. (4) (Same as Women's Studies M238.) Seminar, three hours. Designed for graduate students. Analysis of current American feminist theory relevant to sociologists. Exploration of cri-

tiques of second wave feminism by working class feminists and/or feminists of color, feminist scholars from other countries, and recent "antifeminist" feminists. Discussion of directions for future feminist sociology. Letter grading.

239A-239B. Quantitative Research on Social Stratification and Social Mobility. (4-4) Lecture, three hours. Requisites: courses 210A, 210B. Introduction to English language research literature on quantitative social stratification and social mobility in the U.S. and abroad. In Progress (239A) and letter (239B) grading.

241. Theories of Gender in Society. (4) Lecture, one hour; discussion, two hours. Gender stratification in society and sociology; extent of gender diversity in human societies past and present; why gender is absent in classical macrosociology; can masculinist paradigms make space for gender or does feminist-informed sociology necessitate fresh approach? S/U or letter grading.

M242. Analysis of Data with Qualitative and Limited Dependent Variables. (4) (Same as Statistics M211.) Lecture, three hours. Requisites: courses 210A and 210B, or Statistics 100A, 100B, and 100C. Models for binary, polytomous, and ordered outcomes; censored and truncated dependent variables; sample selection bias and qualitative response models; count outcomes; multilevel models; log-linear models. S/U or letter grading.

244A-244B-244C. Conversation Analysis I, II, III. (6-6-6) Lecture, three hours; discussion, two hours. S/U or letter grading. **244A.** Introduction to some structures basic to organization of conversational interaction: turn-taking organization and sequence organization. **244B.** Requisite: course 244A. Continuation of introduction to some structures basic to organization of conversational interaction: organization of repair, and practices of word selection and reference to persons, places, time, and action. **244C.** Requisites: courses 244A, 244B. Continuation of introduction to some structures basic to organization of conversational interaction: practices of action formation, storytelling organization, and overall structural organization of single conversations.

245. Cultural Sociology: Classical and Contemporary Approaches. (4) Lecture, one hour; discussion, two hours. Exploration of classical approaches to cultural dimension of social life—Weberian, Durkheimian, Parsonian, and critical—and living traditions they have spawned. Examination of contemporary efforts at constructing new cultural sociology. Theoretical focus, with consideration of case studies. S/U or letter grading.

246. Sociology of Culture. (4) Seminar, three hours. Theoretical and methodological issues in structural approaches to culture. Perspectives include cultural economics, political economy, and production of culture. S/U or letter grading.

247. Sociology of Emotions. (4) Lecture, two hours; discussion, one hour. Designed for graduate students. Sociological theories of emotional expression; experiential approaches to emotions: motivational, cognitive, psychophysiological, and behavioral; repression, social oppression, and emotions; creativity and expressed affect; thought, sensations, and emotions; specific emotions; cultural differences in emotional expression; measurement of emotions. Letter grading.

248. Selected Topics in Culture and Society. (4) Seminar, three hours. Designed for graduate students. Seminar on selected topics on culture and society. Consult *Schedule of Classes* for topics and instructors. May be repeated for credit. S/U or letter grading.

M249A. Health Professions. (4) (Same as Community Health Sciences M274.) Lecture, three hours. Requisite: Community Health Sciences 210. Sociological examination of concepts "health" and "illness" and role of various health professionals, especially physicians. Attention to meaning of professionalization and professional/client relationships within range of organizational settings. Letter grading.

M249B. Health and Illness Behavior. (4) (Same as Community Health Sciences M275.) Seminar, three hours. Designed for graduate students. Seminar discussion based on student responses to readings on

medicalization, health promotion as moral enterprise and consumerism, and preoccupation with body. S/U or letter grading.

250. Sociology of Health. (4) Seminar, three hours. Exploration of literature of human health as product of society. Macro focus and micro focus used to examine relevance of macro organizational features of national society (culture, economy, politics) while maintaining awareness of micro pathways that link these wider influences to personal experience (mind, body, emotion). Main focus on modern industrial societies and organized around many leading issues in sociology of health. S/U or letter grading.

M252. Selected Topics in Sociology of Gender. (4) (Same as Women's Studies M252.) Lecture, two hours; discussion, two hours. Designed for graduate students. Seminar on selected topics in sociology of gender. May be repeated for credit. Letter grading.

254. Human Capital, Social Capital, and Cultural Capital. (4) Lecture, three hours. Designed for graduate students. Intellectual history of these concepts, points of difference and similarity among these concepts, current exemplars of research that utilize these concepts, and critical reflection on research traditions. Letter grading.

M255. Cross-Cultural Perspectives on Gender. (4) (Same as Women's Studies M255.) Seminar, three hours. How does gender manifest itself in lives of different groups of women in U.S. and abroad? Are universal analytical categories or united feminist movements possible or is gender too different cross-culturally? S/U or letter grading.

256. Demography. (4) Lecture, four hours. S/U or letter grading.

257. Demography of Marriage Formation and Dissolution. (4) Discussion, three hours. Requisite: course 210A. Extensive and intensive critical examination of major approaches to analysis of marriage formation and dissolution, with focus primarily on demographic literature. S/U or letter grading.

C258. Talk and Social Institutions. (4) Lecture, four hours; discussion, one hour. Practices of communication and social interaction in number of major institutional sites in contemporary society. Setting varies but may include emergency services, police and courts, medicine, news interviews, and political oratory. Concurrently scheduled with course CM125. S/U or letter grading.

259. Social Structure and Economic Change: Historical and Comparative Perspectives. (4) Lecture, four hours. S/U or letter grading.

260. Economy and Society. Discussion, two hours. (4) Discussion, two hours. Designed for graduate students. Review and critique of major analytical traditions in economy and society. S/U or letter grading.

261. Ethnic Minorities. (4) Lecture, four hours. S/U or letter grading.

M262. Selected Problems in Urban Sociology. (4) (Same as Afro-American Studies M200C.) Seminar, three hours. S/U or letter grading.

M263. Social Demography of Los Angeles. (4) (Same as Community Health Sciences M263.) Lecture, three hours. Designed for graduate students. Use of city of Los Angeles to examine major social and demographic factors that characterize cities in the U.S. Examination of role of these factors in affecting health outcomes. Letter grading.

265. Problems in Organization Theory. (4) Lecture, four hours. S/U or letter grading.

266. Selected Problems in Analysis of Conversation. (4) Lecture, three hours. Requisites: courses 244A, 244B. Variable topics/formats course. Consult instructor for topics and formats to be offered in specific term. May be repeated for credit with topic change. S/U or letter grading.

268. Selected Problems in Psychoanalytic Sociology. (4) Discussion, three hours. Recommended preparation: at least one year of methods courses. Selected problems in interpretation of sociology and psychoanalysis, which may be substantive (group development, socialization, culture, deviance, collective

behavior) or methodological; latter focuses on clinical fieldwork and experimental use of psychoanalytic and sociological techniques. S/U or letter grading.

M269A-M269B-M269C. Relationship Science Forums. (2-2-2). (Same as Anthropology M295A-M295B-M295C, Education M298A-M298B-M298C, and Psychology M237A-M237B-M237C.) Seminar, 90 minutes. Limited to graduate students. Current research and theory about personal relationships presented by members of seminar, faculty members, and guest speakers from diverse fields, including anthropology, education, psychology, and sociology. May be repeated for credit. S/U grading.

M270. Interdisciplinary Relationship Science. (4) (Same as Anthropology M295S, Education M297, and Psychology M236.) Lecture, three hours. Limited to graduate students. Diverse approaches to relationship science in fields of anthropology, education, psychology, and sociology. Focus on theme of understanding biological, behavioral, and cultural aspects of relationships through diverse theoretical and methodological approaches. Use of broad definition of interpersonal relationships, including relationships such as parent-child, teacher-student, sibling, peer, kin, romantic relationships, marriages, and friendships. S/U or letter grading.

272. Topics in Political Sociology. (4) Lecture, four hours. S/U or letter grading.

M275. Contemporary Issues of American Indians. (4) (Same as American Indian Studies M200C and Anthropology M269.) Seminar, three hours. Introduction to most important issues facing American Indians as individuals, communities, tribes, and organizations in contemporary world, building on historical background presented in American Indian Studies M200A and cultural and expressive experience of American Indians presented in American Indian Studies M200B. Letter grading.

276. Selected Topics in Sociology of East Asia. (4) Lecture, three hours. Designed for graduate students. Selected problems in China, or in China and Japan comparatively. Possible topics include (1) China's Great Proletarian Cultural Revolution, (2) internal contradictions in Chinese society: male/female relations, city and countryside, minority nationalities, class struggle under socialism, etc., (3) China and Japan: two models of development. S/U or letter grading.

278. Sociology of Latin America. (4) Lecture, one hour; discussion, two hours. Designed for graduate students. Selected topics in sociological study of Latin America. Possible topics include social movements, race and ethnicity, stratification, and social development. Letter grading.

M280. Trafficking, Gender, Health, and Human Rights. (4) (Same as Law M577.) Seminar, four hours. Review and critical assessment of diverse literature on international traffic of persons, with emphasis on significance of sociological, legal, and gender aspects of trafficking. Primary focus on trafficking for sex work and blurred lines between discourse on commercial sex trade and trafficking. Additional issues include role of political and economic transition, militarization, health implications of trafficking, trafficking for nonsexual labor, and role of advocacy. S/U or letter grading.

281. Selected Problems in Mathematical Sociology. (4) Lecture, three hours. Exploration of some mathematical models of sociological processes. Possible topics include models of small groups, social mobility, kinship relations, organizations, social interaction. S/U or letter grading.

282. Sociology of Medicine. (4) Seminar, three hours. Review of major concepts and issues in sociology of medicine. Topics include medicine, culture, and capitalism, professions and power, challenge of managed care, sick role and social control, interactionism and negotiation of sickness, sickness and self, debates over medicalization and demedicalization. Designed as preparation for field examination in sociology of health and medicine and specifically for themes traditionally included under medical sociology/sociology of medicine. S/U or letter grading.

283. Communication in Medical Care. (4) Seminar, three hours. Review and development of empirical knowledge about doctor-patient relationship. Analysis of nature and dynamics of routine office visits, with focus on nature and role of norms in regulating doctor-patient conduct, role of expertise and power in doctor-patient relationship, and methodological questions concerning how doctor-patient relationship can be analyzed. S/U or letter grading.

284. Topics in Mental Health and Illness. (4) Lecture, two to three hours. Requisite: course 148. Designed for graduate students. S/U or letter grading.

285A-285Z. Special Topics in Sociology. (4 each) Seminar, three hours. Designed for graduate students. Seminars on selected current topics of sociological interest. Consult *Schedule of Classes* for topics and instructors. May be repeated for credit. S/U or letter grading.

287. Topics in Chinese Society. (4) Seminar, three hours. Preparation: at least two upper division courses on China in any social sciences discipline. Introduction to current research questions in Chinese sociology, as well as major themes in study of Chinese society, both historical and contemporary, including demographic, economic, political, and social change before and after 1949. S/U or letter grading.

288A-288B-288C. Mental Health Services for Persons with AIDS. (4-4-4) Lecture, four hours. Designed for graduate students. Analysis of current research on mental health service systems for persons with AIDS. S/U grading.

289A-289B. Practicum in Conversation Analysis. (2-4) Requisites: courses 244A, 244B. S/U grading. **289A.** Data Analysis. Laboratory, two hours. Practice in analysis of conversational data. **289B.** Developing Work in Progress. Seminar, three hours. Opportunity to advance research projects in progress and to develop skills of constructive criticism in discussing work of others.

M290A-M290B. Immigration, Racial Change, and Education in 21st-Century Metropolis. (4-4) (Same as Education M289A-M289B, Political Science M287A-M287B, and Public Policy M289A-M289B.) Seminar, four hours. Examination of metropolitan American society and institutions at beginning of 21st century. Consideration of best available information on patterns of settlement, changing functions of urban space and institutions, and issues of opportunity linked to urban structure in society facing unprecedented demographic change that will end primarily European domination of our society by mid-century, creating democracy with no racial or ethnic majority. How this demographic transition and postindustrial transformation of urban functions and space interact to shape opportunity and inequality. Vast economic transformations, brought about by globalization of workplace and dramatic decline of industrial employment in advanced nations, not only greatly raise stakes on creating equal opportunity but also cut off what were previously extremely important parts of intergenerational mobility. In Progress (M290A) and letter (M290B) grading.

291. Social Capital. (4) Seminar, three hours. Requisite: course 254. Designed for graduate students. Survey of social capital literature, including history of subject, macro and micro approaches, and applications of social capital to multiple outcomes. S/U or letter grading.

295. Working Group in Sociology. (1 to 4) Discussion, two hours. Variable topics, including sociology of gender; ethnography; social networks; race, ethnicity, immigration; and social demography and stratification. Advanced study and analysis of current topics in specialized areas of sociology. Discussion of current research and literature in research specialty of faculty member teaching course. May be repeated for credit. S/U grading.

M296A-M296B. Social Theory and Comparative History. (4-4) (Same as History M203A-M203B and Political Science M291A-M291B.) Seminar, three and one-half hours every other week. Introduction to historically rooted social theory and theoretically sensitive

history, following program of Center for Social Theory and Comparative History. Each course may be taken independently for credit. S/U or letter grading.

M296C. Theories in Cultural History. (4) (Same as History M203C.) Discussion, three hours. Introduction to social, linguistic, semiotic, or other new interpretive theories and practices developed in other fields and applied to historical material. Letter grading.

C297. Urban and Suburban Sociology. (5) (Formerly numbered 297.) Seminar, three hours. History and present condition of cities and suburbs in America, with stress on global cities such as New York and Los Angeles, and comparisons to London and Shanghai. Process of suburbanization as it began in early 19th century and still continues. Analysis of city politics, house and architectural styles, crime, urban terror, public housing and ghettos, segregation and integration of neighborhoods, question of gentrification, immigration, urban culture (especially art, museums, and movie and music industries), and environmentalism. Concurrently scheduled with course C191N. Letter grading.

298. Workshop in Culture and Society. (4) Seminar, two hours every other week. Interdisciplinary workshop for graduate students and faculty pursuing theory and research in topics related to interplay of culture and society, whether social, literary, or philosophical in nature. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

M402. Practices of Evaluation in Health Services: Theory and Methodology. (4) (Same as Health Services M422.) Lecture, four hours. Requisites: Health Services 200A, 200B. Introduction to evaluation of health services programs and policies. Exposure to basic theoretical concepts and specific evaluation methodologies and designs. Letter grading.

495. Supervised Teaching of Sociology. (2) Seminar, two hours. Preparation: appointment as teaching assistant in Sociology Department. Special course for teaching assistants designed to deal with problems and techniques of teaching introductory sociology. S/U grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

595. Directed Research for Master's Paper. (4 to 12) Tutorial, to be arranged. Directed research for and writing of M.A. degree paper under guidance of student's M.A. committee chair. S/U grading.

596. Directed Individual Study and Research in Sociology. (2 to 12) Tutorial, to be arranged. S/U grading.

597. Individual Study for Examinations. (4 to 12) Tutorial, to be arranged. Preparation for Ph.D. qualifying examinations. S/U grading.

599. Research in Sociology for Ph.D. Candidates. (4 to 12) Tutorial, to be arranged. S/U grading.

SOUTH ASIAN STUDIES

*Interdepartmental Program
College of Letters and Science*

UCLA
10357 Bunche Hall
Box 951487
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(310) 825-5187
fax: (310) 206-3555
e-mail: idps@international.ucla.edu
<http://www.international.ucla.edu/idps/southasia/>

Akhil Gupta, Ph.D., *Chair*

Faculty Administrative Committee

Anurima Banerji, M.A. (*World Arts and Cultures*)
Nile S. Green, Ph.D. (*History*)
Akhil Gupta, Ph.D. (*Anthropology*)
Stephanie W. Jamison, Ph.D. (*Asian Languages and Cultures*)
Gyanam Mahajan, Ph.D. (*Asian Languages and Cultures*)
Purnima Mankekar, Ph.D. (*Asian American Studies, Women's Studies*)
Saloni Mathur, Ph.D. (*Art History*)
Aamir R. Mufti, Ph.D. (*Comparative Literature*)
Vinit Mukhija, Ph.D. (*Urban Planning*)
Gregory R. Schopen, Ph.D. (*Asian Languages and Cultures*)
Aparna Sharma, Ph.D. (*World Arts and Cultures*)
Monica L. Smith, Ph.D. (*Anthropology*)

Scope and Objectives

The minor in South Asian Studies seeks, through multidisciplinary approaches, to address the history and contemporary importance of South Asia, which is comprised of Sri Lanka, India, Pakistan, Nepal, Bhutan, Bangladesh, and the Maldives, and accounts for nearly 1.5 billion people.

Studying South Asia as a region exposes students to the rich historical, cultural, and religious diversity of a major center of civilization. South Asia is the birthplace of half of the world's religions, including Buddhism, Hinduism, Sikhism, and Jainism. India, Pakistan, and Bangladesh together have more Muslims than the Middle East, and South Asian Islam, interacting with the other faiths of the subcontinent, has seen an efflorescence of philosophy, theology, poetry, and art.

South Asia is emerging as an important node in the global economy as a center of high technology and manufacturing. It is also important as a regional power, a contributor to world literature and film, and a seedbed for philosophy and social activism.

Undergraduate Study

South Asian Studies Minor

The South Asian Studies minor is designed for students who wish to augment their major with concerted study of the history, culture, society, and languages of South Asia. The minor includes the introductory study of one South Asian language, one lower division course on South Asian history, and five upper division courses that focus on some aspect of the his-

tory, culture, politics, religions, and artistic heritage of South Asia.

To enter the minor, students must (1) be in good academic standing with a 2.0 grade-point average or better, (2) have completed 45 units and at least one lower division course (other than a language course) in South Asian studies, and (3) meet with the academic counselor in 10357 Bunche Hall.

Required Lower Division Courses (10 units maximum): History 9A and completion of the third term of either Hindi (Hindi-Urdu 3 or 3R) or Sanskrit (South Asian 110C) or by demonstrated proficiency as determined by a placement examination. Proficiency in other South Asian languages, such as Gujarati, Bengali, Marathi, Tamil, Telugu, Pashto, or Urdu, may be accepted by petition, pending completion of a placement examination to be administered at UCLA or approval of an alternative and recognized course of language study.

Required Upper Division Courses (20 units minimum): Five courses, with no more than two from any single discipline or department, to be selected from Anthropology 116, Art History 114A, 114D, C115A, C180C, Asian 151, 162, 163, 164, Asian American Studies M172A, Ethnomusicology 146, 147, History 174A through 174E, 175A, M175B, 175C, 185B, 185C, Islamics 110, 130, 151, South Asian 115, 150, 175, 185.

Variable or selected topics courses (e.g., Comparative Literature 191) fulfill minor requirements only when the content focuses substantially on South Asia. Other courses with substantial South Asian content of at least 50 percent (as determined by the course instructor) may be applied only with prior approval of a petition filed with the academic counselor. Up to 12 units taken through a study abroad program may be applied toward the minor, though no more than 8 of the units may be applied toward the 20 units of upper division coursework.

Independent studies courses (197 or 199) may not be applied toward the minor. No more than one upper division course may be applied toward both this minor and a major or minor in another department or program.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

SOUTHEAST ASIAN STUDIES

*Interdepartmental Program
College of Letters and Science*

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<http://www.international.ucla.edu/idsps/seasia/>

George E. Dutton, Ph.D., *Chair*

Faculty Administrative Committee

Victor Bascara, Ph.D. (*Asian American Studies*)
George E. Dutton, Ph.D. (*Asian Languages and Cultures*)
Lieba B. Faier, Ph.D. (*Geography*)
Patrick C. Heuveline, Ph.D. (*Sociology*)
Douglas W. Hollan, Ph.D. (*Anthropology*)
Thu-huong Nguyen-Vo, Ph.D. (*Asian Languages and Cultures*)
Geoffrey Robinson, Ph.D. (*History*)
Michael L. Ross, Ph.D. (*Political Science*)

Scope and Objectives

The Southeast Asian Studies major and minor approach Southeast Asia as a region of deep local particularities and transregional engagements. This includes the study of present-day countries of Burma, Thailand, Cambodia, Laos, Vietnam, Malaysia, Indonesia, the Philippines, Singapore, Brunei, and East Timor. This is a massively heterogeneous grouping of societies, ethnicities, languages, cultures, histories, and environments.

In addition to the prominence of the region in many recent international issues (democratization, the Cold War, decolonization, global capital flows, natural resource and environmental regulation, ethnic tensions, etc.), Southeast Asia is also a prominent site for reflection on enduring questions about culture and human diversity. Southeast Asia is taught as a region, with emphasis on the particular languages, cultures, politics, and topographies of individual nations, ethnic groups, subnational regions, and associations. Yet, it is nearly impossible to teach about any part of Southeast Asia without at least occasionally engaging a range of transregional connections that date back to ancient times. Historically, the peoples of Southeast Asia have been engaged with each other as well as with India and China, the Middle East, Europe, and the Americas and with global contexts of economics, politics, migrations, and communications. When approached from the point of view that holds Southeast Asia to be a locus of shifting transactions and human connections (rather than a reified and timeless region of common culture), the study of the region speaks powerfully to critical issues across many disciplines. Thus construed, Southeast Asian studies addresses major contemporary concerns in the humanities, social sciences, arts, business, the professions, government policy, and international affairs.

Undergraduate Study

Southeast Asian Studies B.A.

The major is designed for students who are deeply interested in the study of Southeast Asian languages, cultures, and societies. It requires the intermediate-level study of one Southeast Asian language, three lower division core courses on Southeast Asia as a region, and at least 14 upper division courses, including a capstone senior seminar. Majors are expected, whenever possible, to study for at least one term at a university in Southeast Asia.

Admission

To enter the major, students must (1) be in good academic standing (minimum 2.0 grade-point average), (2) have completed 45 units and at least one lower division core course in Southeast Asian studies, and (3) meet with the academic counselor in 10357 Bunche Hall.

Preparation for the Major

Required: History 9E, Southeast Asian Studies 1, 88; completion of six terms of either Filipino 1 through 6, Indonesian 1 through 6, Thai 1 through 6, or Vietnamese 1 through 6 or demonstrated proficiency as determined by a placement examination. Proficiency in other Southeast Asian languages may be accepted by petition, pending completion of a placement examination or approval of an alternative course of language study.

Transfer Students

Transfer applicants to the Southeast Asian Studies major with 90 or more units must complete the following introductory courses prior to admission to UCLA: either one course on Southeast Asia or one year of study of a Southeast Asian language (or demonstrated equivalent ability).

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: At least 14 upper division courses (56 units) must be completed, including 10 courses that must have substantial Southeast Asian content, as follows:

Three humanities and arts courses must be selected from Art History 114F, Ethnomusicology C159, 161B, 161H, 161M, Indonesian 100A, 100B, 100C, Southeast Asian 130, 135, 170A, 170B, 170C, Thai 100A, 100B, 100C, Theater 102B, Vietnamese 100A, 100B, 100C, World Arts and Cultures 112B. For Ethnomusicology 161B, 161H, and 161M to count as one 4-unit upper division course to be applied toward the major, any two of the courses may be taken once or any one course may be taken twice.

Three social sciences and policy courses must be selected from Anthropology 175U, Asian American Studies 133, 134, M164, M171D, 171E, History 176A through 176E, 177A, 177B, 191M, Political Science 158, Southeast Asian 157.

Variable or selected topics courses (e.g., Asian American Studies 191) fulfill major requirements only when the content focuses substantially on Southeast Asia or a subregion of it.

All majors must also successfully complete Southeast Asian Studies 191.

Three elective courses must be selected from the courses listed above and from those offered by the program. Other courses with substantial Southeast Asian content may be applied toward the major pending approval of a petition filed with the academic counselor.

Breadth and Methods Requirement

Four additional upper division courses on topics outside Southeast Asia must be taken to satisfy the breadth and methods requirement. The courses must be selected in consultation with and approved by the academic counselor. The requirement can be fulfilled by one of the following options:

1. Completing at least 16 units that focus on a single geographical region other than Southeast Asia (e.g., East Asia, South Asia, Europe, Middle East). All four courses must focus on the same country or region. This track provides students with an opportunity to analyze Southeast Asia from a comparative geographic perspective
2. Completing at least 16 units with a single topic of study relevant to Southeast Asia (e.g., religion, economic development, gender studies, human rights, diasporic studies, popular culture). All four courses must concentrate on the same topic. This track provides students with an opportunity to view Southeast Asia from a comparative thematic approach
3. Completing at least 16 units on subjects outside Southeast Asia from any one department (e.g., Anthropology, Art History, Asian American Studies, Comparative Literature, History, Political Science, Sociology) whose methodology or discipline can be applied to the study of Southeast Asia. One of the courses should be a theoretical or methodological core course in the discipline. This track provides students with solid background in a particular field that can then be applied to the study of Southeast Asia

At least one half the units required for the major must be in departments that offer undergraduate majors in the College of Letters and Science. Each course for the major must be taken for a letter grade and be successfully completed with a grade of C (2.0) or better. No more than two independent studies courses (197 or 199) may be applied toward the degree.

Study in Southeast Asia

Study in Southeast Asia for at least one term during the junior or senior year is highly recommended. The program considers study in Southeast Asia an important cultural experience and an opportunity to advance language

proficiency, as well as a way to expand the range of formal classroom education.

The University of California operates Education Abroad Programs (EAPs) in several Southeast Asian countries. See <http://www.ieo.ucla.edu/eap/> for the current list. Students may apply to any of the UC-sponsored EAPs in Southeast Asia or they may petition to attend a university in Southeast Asia by making arrangements directly or by enrolling through another American university's study abroad program.

Students majoring or minoring in Southeast Asian Studies who attend an EAP are eligible to earn course credit (4 units) toward the upper division requirements by successfully completing Southeast Asian Studies 180, when offered, for a letter grade after they return to UCLA. The principal assignment in course 180 is to write a paper based on field experience or research collected while in Southeast Asia or to produce a creative work (fiction, memoir, art, performance) of equivalent note.

Honors Program

The honors program is designed to offer highly motivated Southeast Asian Studies majors the opportunity to design and conduct their own independent research under the guidance of a faculty adviser and consists of a three-term directed-study series of courses—Southeast Asian Studies 198A, 198B, 198C—culminating in an honors thesis.

Admission

To enter the honors program, students must (1) have completed Southeast Asian Studies 1 and 88, (2) have a 3.5 grade-point average in the major and a 3.5 overall GPA, and (3) obtain agreement from a faculty member to supervise their honors thesis. Application should normally be made during the junior year, after students have completed more than 90 units of coursework. Consult the academic counselor for further details about the application, thesis requirements, and rules regarding the selection of a faculty thesis adviser.

Requirements

After a faculty adviser has been selected and has agreed to advise them during the year-long project, students must complete the Southeast Asian Studies Honors Program Application and a two-page preliminary outline of the proposed research project, have the faculty adviser sign the application, and submit both to the academic counselor who verifies that the necessary signatures have been obtained and the requisites have been met. The counselor assists the students in formally enrolling in Southeast Asian Studies 198A. Enrollment in subsequent terms (courses 198B and 198C) is contingent on students having demonstrated satisfactory progress toward writing of the honors thesis.

Throughout the three terms of the honors program, students work closely with their faculty adviser who guides them through the various phases of research. At the end of the third term, students submit the thesis to their faculty adviser for final review.

To graduate with departmental honors, students must (1) complete all requirements for the major with a cumulative grade-point average of 3.5 or better in upper division courses required for the major and an overall GPA of 3.5 or better, (2) complete courses 198A, 198B, and 198C, and (3) produce an honors thesis (approximately 40 to 60 pages) determined to be of honors quality by a committee of three faculty members. The thesis must then be submitted to the academic counselor in 10357 Bunche Hall.

To graduate with departmental highest honors, students must (1) complete all requirements for the major with a cumulative grade-point average of 3.75 or better in upper division courses required for the major and an overall GPA of 3.5 or better, (2) complete courses 198A, 198B, and 198C, and (3) produce an honors thesis (approximately 40 to 60 pages) determined to be of highest honors quality by a committee of three faculty members. The thesis must then be submitted to the academic counselor in 10357 Bunche Hall.

Departmental honors and highest honors are recorded on the final transcript and diploma after students successfully complete the program.

Southeast Asian Studies Minor

The Southeast Asian Studies minor is designed for students who wish to augment their major with concerted study of language, culture, and society in Southeast Asia. The minor includes the introductory study of one Southeast Asian language, two lower division core courses on Southeast Asia as a region, and five upper division courses that may focus on one or more Southeast Asian cultures or societies.

To enter the minor, students must (1) be in good academic standing (minimum 2.0 grade-point average), (2) have completed 45 units and at least one lower division nonlanguage preparatory course in Southeast Asian studies, and (3) meet with the academic counselor in 10357 Bunche Hall.

Required Lower Division Courses (13 units): History 9E, Southeast Asian Studies 1, and completion of Filipino 3, Indonesian 3, Thai 3, or Vietnamese 3 or demonstrated proficiency as determined by a placement examination. Proficiency in other Southeast Asian languages may be accepted by petition, pending completion of a placement examination or approval of an alternative course of language study.

Required Upper Division Courses (20 units): Five courses, with (1) at least two humanities and arts courses selected from Art History 114F, Ethnomusicology C159, 161B, 161H, 161M, Indonesian 100A, 100B, 100C, Southeast Asian 130, 135, 170A, 170B, 170C, Southeast Asian Studies 191, Thai 100A, 100B, 100C, Theater 102B, Vietnamese 100A, 100B, 100C, World Arts and Cultures 112B and (2) at least two social sciences and policy courses selected from Anthropology 175U, Asian American Studies 133, 134, M164,

M171D, 171E, History 176A through 176E, 177A, 177B, 191M, Political Science 158, Southeast Asian 157.

For Ethnomusicology 161B, 161H, and 161M to count as one 4-unit upper division course to be applied toward the major, any two of the courses may be taken once or any one course may be taken twice.

Variable or selected topics courses (e.g., Asian American Studies 191) fulfill minor requirements only when the content focuses substantially on Southeast Asia or a subregion of it. Other courses with substantial Southeast Asian content may be applied pending approval of a petition filed with the academic counselor.

Independent studies courses (197 or 199) may not be applied toward the minor. No more than two upper division courses may be applied toward both this minor and a major or minor in another department or program. Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Southeast Asian Studies

Lower Division Courses

1. Introduction to Southeast Asian Studies. (5) Lecture, three hours; discussion, one hour (when scheduled). Introductory survey of diverse and dynamic societies of contemporary Southeast Asia, with strong focus on interdisciplinary themes in humanities and cultural studies. P/NP or letter grading.

88. Sophomore Seminars: Introduction to Interdisciplinary Study of Southeast Asia. (5) Seminar, three hours. Limited to majors. Introduction to methods of interdisciplinary and comparative study, providing students with opportunity to develop competence in using those approaches through investigation of critical issues in Southeast Asian studies. Culminating paper or project may be required. Letter grading.

Upper Division Courses

180. Research Seminar: Southeast Asian Studies. (4) Seminar, three hours. Limited to Southeast Asian Studies majors and minors. Designed for students to analyze their experiences after they return from study abroad in Southeast Asia. Culminating paper or project required. Letter grading.

188. Special Courses in Southeast Asian Studies. (4) Lecture, three hours; discussion, one hour. Interdepartmentally sponsored experimental or temporary courses on selected contemporary topics in Southeast Asian studies taught by visiting instructors or affiliated faculty members. May be repeated for credit with topic change. P/NP or letter grading.

191. Senior Seminar: Variable Topics in Southeast Asian Studies. (4) Seminar, three hours. Limited to senior majors. Research seminar on selected topics. Examination of literature and/or state of field in Southeast Asian studies. Capstone course for majors who write substantial literature review or paper based on original research. May be repeated once for credit with topic change and consent of chair. Letter grading.

198A-198B-198C. Honors Research in Southeast Asian Studies. (4-4-4) Tutorial, to be arranged. Limited to Southeast Asian studies honors program students. May be repeated for credit. Individual contract required. **198A.** Independent research and planning of honors thesis under direct supervision of faculty member. In Progress grading. **198B.** Requisite: course 198A. Independent research and drafting of honors

thesis under direct supervision of faculty member. In Progress grading. **198C.** Requisite: course 198B. Final drafting and submission of honors thesis under direct supervision of faculty member. Letter grading.

199. Directed Research in Southeast Asian Studies. (4) Tutorial, to be arranged. Limited to juniors/seniors. Supervised individual research under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. Letter grading.

SPANISH AND PORTUGUESE

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Professors

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John C. Dagenais, Ph.D.
María T. De Zubiaurre, Ph.D.
Barbara Fuchs, Ph.D.
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Roberta L. Johnson, Ph.D., *in Residence*
Efrain Kristal, Ph.D.
Claudia Parodi-Lewin, Ph.D.
Susan J. Plann, Ph.D.
A. Carlos Quicoli, Ph.D.
Teófilo F. Ruiz, Ph.D.
Jesús Torrecilla, Ph.D.
Maarten H. Van Delden, Ph.D.

Professors Emeriti

Shirley L. Arora, Ph.D.
Rubén A. Benítez, Ph.D.
E. Mayone Dias, Ph.D.
Joaquín Gimeno, Ph.D.
Claude L. Hulet, Ph.D.
Gerardo A. Luzuriaga, Ph.D.
C. Brian Morris, Litt.D.
C.P. Otero, Ph.D.
José Pascual-Buxó, Ph.D.
Stanley L. Robe, Ph.D.
Enrique Rodríguez-Cepeda, Ph.D.
Paul C. Smith, Ph.D.

Associate Professors

Michelle A. Clayton, Ph.D.
José Luiz Passos, Ph.D.
A. John Skirius, Ph.D., *Emeritus*

Assistant Professors

Jorge Marturano, Ph.D.
Anna H. More, Ph.D.

Lecturer

Victoria A. West, M.A.

Scope and Objectives

The Department of Spanish and Portuguese is dedicated to the study and teaching of the languages, literatures, and cultures of the Hispanic heritage in all areas of the world, particularly on the continents of Europe and America. It maintains a strong commitment to the value

of original research and professional instruction at all levels of its activities.

Whether studying for the B.A., M.A., or Ph.D. degree, students are given careful guidance in the choice of courses and in the preparation of a study program. The richness of Hispanic culture is amply represented in the extensive range of courses in language, linguistics, and literature. Although the literatures of Spain, Portugal, Brazil, and Spanish America predominate, courses are also offered in Chicano literature. The breadth of courses offered by the department allows undergraduate students to pursue many possible interests and enables graduate students to concentrate in depth in several areas of specialization.

The department's courses are primarily designed to serve the five B.A. programs: B.A. in Spanish, B.A. in Spanish and Community and Culture, B.A. in Spanish and Linguistics, B.A. in Spanish and Portuguese, and B.A. in Portuguese, as well as to prepare students for its three graduate programs: M.A. in Spanish, M.A. in Portuguese, and Ph.D. in Hispanic Languages and Literatures. The courses are also functionally supportive of such interdepartmental programs as the B.A. program in Chicana and Chicano Studies, B.A. and M.A. programs in Latin American Studies, and M.A. and Ph.D. programs in Comparative Literature.

Undergraduate Study

One of the majors in the Spanish and Portuguese Department is a designated capstone major: Spanish and Community and Culture. Undergraduate students participate in community-based experiential learning courses coupled with elective and adjunct courses. Reflective journals, final projects, and in-class presentations are required. Through their capstone work, students should have mastery of the Spanish language, ability to conduct and interpret research to determine the needs of specific communities, critical understanding and ability to apply theories within a service context, sensitivity to diversity and cultural differences, and ability to perform scholarly presentations that tie current issues to research and theory.

Undergraduate Courses

Spanish 1 through 3 use Castells' *Mosaicos*. The method is inductive. Selected examples are given to enable students to inductively grasp the rules and develop their own grammar. This enables students to use language effectively and creatively. The courses are taught entirely in Spanish—students simultaneously learn to understand, speak, read, and write Spanish.

Students with one or more years of high school Spanish who plan to enroll in Spanish 1 through 25 must take the departmental placement examination. Consult the *Schedule of Classes* or the department office for test dates and location.

No credit is allowed for completing a less advanced course after successful completion of a

more advanced course in Spanish and Portuguese grammar and/or composition.

Spanish B.A.

Preparation for the Major

Required: Spanish 25 or 27 or equivalent, and M42 and M44 or equivalent as determined by the undergraduate adviser. Each course must be passed with an average grade of C or better prior to beginning upper division work in the major.

Transfer Students

Transfer applicants to the Spanish major with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of Spanish, one Spanish civilization course, and one Spanish American civilization course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: (1) Two core courses (Spanish 119 and 120), (2) eight upper division Spanish elective courses in literature, culture, linguistics, media, service learning, or interdisciplinary studies, up to two of which may be from an outside department that deals with Spain or Spanish America and have been approved by the undergraduate adviser, and (3) one senior capstone seminar.

Spanish and Community and Culture B.A.

Capstone Major

Preparation for the Major

Required: Spanish 25 or 27 or equivalent, and M42 and M44 or equivalent as determined by the undergraduate adviser. Each course must be passed with an average grade of C or better prior to beginning upper division work in the major.

Transfer Students

Transfer applicants to the Spanish and Community and Culture major with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of Spanish, one Spanish civilization course, and one Spanish American civilization course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: (1) Two language and linguistics courses from Spanish 100A or 100B, and 105 or 107; (2) two Hispanic literature courses—Spanish 120A and 120B; (3) three Hispanic literature, language, and culture courses selected from 109, 120C, 140, 142, 143, 144A, 144B, 144C, M145A, M145B, M146, 147, 151A, 151B; (4) 2 units of 187A, 187B, 189HC, or 199 associated with at least one course from item 3 or 4;

(5) two interdisciplinary studies courses selected from Chicana and Chicano Studies 100SL, M106, M119, 120, M121, M122, 131, M144, 149, 181, Sociology M155; (6) one upper division elective course (4 units) in Spanish or an additional course selected from item 6; (7) two capstone community-based and experiential learning courses (8 to 10 units) selected from Chicana and Chicano Studies 100SL, Spanish M165SL, M172SL, 195.

A minimum of 46 units applied toward the major requirements must be in addition to units applied toward major or minor requirements in another department or program.

Spanish and Linguistics B.A.

Preparation for the Major

Required: Spanish 25 or 27 or equivalent as determined by the placement test; course M35 or Linguistics 20; course M42 or M44 or equivalent as determined by the undergraduate adviser; and three terms of study in one language other than Spanish and English, which may be taken concurrently with the major. Each course must be passed with an average grade of C or better.

Transfer Students

Transfer applicants to the Spanish and Linguistics major with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of Spanish, one introduction to linguistics course, one Spanish civilization course or one Spanish American civilization course, and one year of a language other than Spanish or English.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: (1) Spanish 100A, 100B, 105, Linguistics 103, 120A, 120B, (2) one course from Linguistics 160 or 165A or 165B, and (3) three upper division Spanish electives, two of which must be in Spanish linguistics.

Spanish and Portuguese B.A.

Preparation for the Major

Required: Spanish 25, Portuguese 3 or 102B, M42 or M44 or equivalent, 46 or equivalent.

Transfer Students

Transfer applicants to the Spanish and Portuguese major with 90 or more units must complete the following introductory courses prior to admission to UCLA: two years of Spanish, one year of Portuguese, one Spanish civilization course or one Spanish American civilization course, and one Brazilian culture course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: (1) Four upper division language and linguistics courses: Portuguese 100A, 100B, 105, Spanish 105; (2) four upper division literature courses selected as follows: two courses from Spanish 119A, 119B or from 120A, 120B, 120C and two courses from Portuguese 120A, 120B or from 130A, 130B; (3) six upper division electives, three of which must be in Spanish and three in Portuguese (numbered C124 and above). Only upper division courses taught in the target language may be applied toward the major.

Portuguese B.A.

Preparation for the Major

Required: Portuguese 3, M35, M42 or M44, 46, or equivalent.

Transfer Students

Transfer applicants to the Portuguese major with 90 or more units must complete the following introductory courses prior to admission to UCLA: one year of Portuguese, one nature of language course, one Portuguese civilization course or one Brazilian civilization course, and one Brazilian culture course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Portuguese Language and Literature Concentration

Required: Thirteen upper division courses, including Portuguese 100A, 100B, 105, either 120A and 120B, or 130A and 130B, and eight elective courses in Portuguese, or six electives in Portuguese plus two courses from areas that complement the program approved by the undergraduate adviser in Portuguese.

Portuguese and Linguistics Concentration

Required: Completion of six terms of study in one other foreign language or three terms in each of two other foreign languages, in addition to the preparation for the major courses. Spanish is recommended.

The concentration consists of 13 upper division courses, including Portuguese 100A, 100B, 105, M118A, M118B, Linguistics 100, 103, 110, 120A, 120B, and three electives, two of which must be in Luso-Brazilian literature.

Double Majors

Through judicious use of electives, students may find it possible to secure the B.A. degree with two complete majors (e.g., Portuguese/Spanish, Portuguese/History, Portuguese/Sociology, etc.). Interested students should consult the undergraduate adviser in Portuguese as early as possible in their B.A. program.

Study in a Portuguese-Speaking Country

Students are encouraged to spend up to one year in a Portuguese-speaking country to study in a university or conduct research. Appropriate

credit may be granted in accordance with the individual program, arranged in consultation with the undergraduate faculty adviser in Portuguese. Proposals must be submitted in advance in writing and must be approved by the department.

Honors Program

The honors program is open to all departmental majors who have completed the required nine upper division core courses with a 3.5 grade-point average. Eligibility is verified by the departmental counselor.

Two honors projects and an honors thesis are required. To graduate with departmental honors, students must first complete an honors project in each of two of their upper division Spanish elective courses. The honors project is a 12- to 15-page term paper on a special topic, selected in consultation with the instructor, to be completed in addition to the normal course requirements. On the basis of the coursework and special interests, students then consult a faculty member in that field and formulate a research project that they pursue under the faculty member's guidance through Spanish 198. Students research and write an honors thesis (not to be confused with an honors project) of approximately 25 pages on the selected topic. Approval of the honors thesis is the final requirement for departmental honors.

Mexican Studies Minor

The Mexican Studies minor allows students with an interest in Mexico to augment their major programs with courses that expose them to the history, literature, and culture of Mexico. Given Southern California's proximity to Mexico, the demographics of Los Angeles, and the shared history of Mexico and the Southwest, the minor is a natural complement to many majors.

To enter the minor, students must have an overall grade-point average of 2.0 or better and must complete or show proficiency equivalent to two years of college-level Spanish. A petition to declare the minor should be filed with the undergraduate counselor in 5314 Rolfe Hall.

Required Lower Division Courses (8 units): Spanish 25 or 27, and one course from History 8A, 8B, 8C, or Spanish M44.

Required Upper Division Courses (20 units): Spanish 144A, 144B, 144C, and two courses from Anthropology 114P, 114Q, Chicana and Chicano Studies M102, M108A, 120, M125, 132, 142, 172, 184, Ethnomusicology M108A, Geography 181, History 157B, 160B, Spanish 109, 137, 139, M145A, M145B, M146.

No more than two upper division courses may be applied toward both this minor and a major or minor in another department or program. By petition and after consultation with the undergraduate adviser, one 4-unit 197 or 199 course may be applied toward the minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful

completion of the minor is indicated on the transcript and diploma.

Portuguese Minor

To enter the Portuguese minor, students must have an overall grade-point average of 2.0 or better and must complete Portuguese 3 or 102B.

Required Lower Division Course (4 units): Portuguese 46.

Required Upper Division Courses (24 units): Portuguese 105 and five Portuguese courses selected from 100A through 199 (except 102A, 102B). Only one 4-unit Portuguese 197 or 199 course may be selected.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Spanish Minor

To enter the Spanish minor, students must have an overall grade-point average of 2.0 or better and must complete or show proficiency equivalent to two years of college-level Spanish.

Required Lower Division Courses (8 units): Spanish 25 or 27, and M42 or M44.

Required Upper Division Courses (24 to 25 units): Six courses in literature, of which four (22 units) must be selected from Spanish 119A through 191B (one of the four must be from either 119A or 119B or from 120A, 120B, or 120C).

No more than two upper division courses may be applied toward both this minor and a major or minor in another department or program. By petition and after consultation with the undergraduate adviser, one 4-unit 197 or 199 course may be applied toward the minor.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Spanish Linguistics Minor

To enter the Spanish Linguistics minor, students must have an overall grade-point average of 2.0 or better and must complete or show proficiency equivalent to two years of college-level Spanish.

Required Lower Division Courses (8 units): Spanish 25 or 27, and M35.

Required Upper Division Courses (24 units): Spanish 100A, 100B, three courses from 107, 115, M118A, M118B, and one other upper division Spanish course.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Spanish and Portuguese offers the Master of Arts (M.A.) degree in Spanish, Master of Arts (M.A.) degree in Portuguese, and Candidate in Philosophy (C.Phil.) and Doctor of Philosophy (Ph.D.) degrees in Hispanic Languages and Literatures.

Portuguese

Lower Division Courses

1. Elementary Portuguese. (4) Discussion, five hours; laboratory, one hour. P/NP or letter grading.

2. Elementary Portuguese. (4) Discussion, five hours; laboratory, one hour. Enforced requisite: course 1. P/NP or letter grading.

3. Intermediate Portuguese. (4) Discussion, five hours; laboratory, one hour. Enforced requisite: course 2. P/NP or letter grading.

8A-8B. Portuguese Conversation. (2-2) Discussion, three hours. Enforced requisite: course 3 with grade of B or better. P/NP or letter grading.

25. Advanced Portuguese. (4) Enforced requisite: course 3. P/NP or letter grading.

M35. Spanish, Portuguese, and Nature of Language. (5) (Same as Spanish M35.) Lecture, three hours; discussion, one hour. Introduction to language study within context of Romance languages, focusing on Spanish and Portuguese. Nature of language: structure, diversity, evolution, social and cultural settings, literary uses. Study of language and its relation to other areas of human knowledge. P/NP or letter grading.

40A-40B. Portuguese, Brazilian, and African Literature in Translation. (4-5) Lecture, Reading and discussion of selected works in translation. Papers and examinations in English. P/NP or letter grading. **40A.** Portuguese and Portuguese-African Literature. Lecture, three hours; **40B.** Brazilian Literature. Lecture, four hours.

M42. Civilization of Spain and Portugal. (5) (Same as Spanish M42.) Lecture, three hours; discussion, one hour. Required of majors. Lectures taught in English; discussion sections taught in either Spanish or English. Highlights of civilization of Spain and Portugal, with emphasis on artistic, economic, social, and historical development as background for upper division courses. P/NP or letter grading.

M44. Civilization of Spanish America and Brazil. (5) (Same as Spanish M44.) Lecture, three hours; discussion, one hour. Required of majors. Lectures taught in English; discussion sections taught in either Spanish or English. Highlights of civilization of Spanish America and Brazil, with emphasis on artistic, economic, social, and historical development as background for upper division courses. P/NP or letter grading.

46. Brazilian Culture and Civilization. (5) Lecture, four hours. Taught in English. Topical analysis of cultural history of Brazil, with emphasis on physical environment, principal historical, social, and economic development, and artistic manifestations. P/NP or letter grading.

Upper Division Courses

100A. Phonology and Morphology. (4) Lecture, three hours. Requisite: course 105. Analysis of phonetic, phonemic, and morphological systems of Portuguese. P/NP or letter grading.

100B. Syntax. (4) Lecture, three hours. Requisite: course 105. Review of patterns of Portuguese language. P/NP or letter grading.

102A-102B. Intensive Portuguese. (4-4) Preparation: foreign language experience (other than Portuguese). Development of speaking and reading skills equivalent to those covered in three terms of the traditional pattern and to meet special needs of advanced undergraduate and graduate students.

103. Language and Popular Culture. (4) Lecture, three hours. Requisite: course 3 or 102B. Development of speaking, reading, and writing skills. Structured in thematic units, with songs, videos, and specific vocabulary emphasizing questions of Brazilian cultural identity. Letter grading.

105. Advanced Composition and Style. (4) Lecture, three hours. Requisite: course 3 or 102B. Practice in writing Portuguese with appropriate vocabulary, syntactical structures, and stylistic patterns. P/NP or letter grading.

M118A-M118B. History of Portuguese and Spanish. (4-4) (Same as Spanish M118A-M118B.) Lecture, three hours. Requisites: courses M35, 100A. Course M118A is requisite to M118B. Major features of development of Portuguese and Spanish languages from their origins in Vulgar Latin to modern times. P/NP or letter grading. **M118A.** Phonology; **M118B.** Morphology and Syntax.

120A-120B. Introduction to Portuguese Literature. (4-4) Lecture, three hours. Requisite: course 105. Introduction to principal periods, currents, and authors of Portuguese literature. P/NP or letter grading.

C124. Early Portuguese Literature. (4) Lecture, three hours. Requisite: course 105. Study of main genres of medieval Portuguese and Galician literature through representative works. Concurrently scheduled with course C224. P/NP or letter grading.

C125. Camões and Portuguese Renaissance. (4) Lecture, three hours. Requisite: course 105. Study of main genres of Renaissance Portuguese literature, with particular emphasis on works of Luis de Camões. Concurrently scheduled with course C225. P/NP or letter grading.

C126. Baroque and Neoclassical Portuguese Literature. (4) Lecture, three hours. Requisite: course 105. Study of main genres of baroque and neoclassical Portuguese literature through representative works. May be concurrently scheduled with course C226. P/NP or letter grading.

C127. 19th-Century Portuguese Literature. (4) Lecture, three hours. Requisite: course 105. Study of principal features through representative works. May be repeated for credit with topic change. Concurrently scheduled with course C227. P/NP or letter grading.

C128. Post-Romanticism and Naturalism in Portuguese Literature. (4) Lecture, three hours. Requisite: course 105. Study of principal features through representative works. May be concurrently scheduled with course C228. P/NP or letter grading.

C129. 20th-Century Portuguese Literature. (4) Lecture, three hours. Requisite: course 105. Study of representative trends and authors. May be repeated for credit with topic change. Concurrently scheduled with course C229. P/NP or letter grading.

130A-130B. Brazilian Literature and Identity: Introduction. (4-4) Lecture, three hours. Requisite: course 105. Introduction to principal periods, currents, and authors of Brazilian literature. P/NP or letter grading.

C131. Colonial Brazilian Literature and Culture. (4) Lecture, three hours. Requisite: course 105. Study of most important authors to 1830. May be repeated for credit with topic change. Concurrently scheduled with course C231. P/NP or letter grading.

C132. 19th-Century Brazilian Literature and Culture. (4) Lecture, three hours. Requisite: course 105. Study of representative trends and authors. May be repeated for credit with topic change. Concurrently scheduled with course C232. P/NP or letter grading.

C133. Machado de Assis. (4) Lecture, three hours. Requisite: course 105. Study of selected works by Joaquim Maria Machado de Assis. Concurrently scheduled with course C233. P/NP or letter grading.

C134. Brazilian Modernism. (4) Lecture, three hours. Requisite: course 105. Study of principal characteristics of Brazilian modernism through representative works. Concurrently scheduled with course C234. P/NP or letter grading.

C135. 20th-Century Brazilian Literature. (4) Lecture, three hours. Requisite: course 105. Study of representative trends and authors. May be repeated for credit with topic change. Concurrently scheduled with course C235. P/NP or letter grading.

141. Brazilian Film and Literature. (4) Lecture, three hours. Taught in English. Topical analysis of main literary and historical themes of Brazilian culture, through films and literary texts. P/NP or letter grading.

191. Undergraduate Variable Topics Seminars: Portuguese. (4) Seminar, three hours. Requisite: course 105. Research seminar on selected topics in Portuguese. Reading, discussion, and development of culminating project. Consult *Schedule of Classes* or department counselor for topic to be offered in specific term. P/NP or letter grading.

197. Individual Studies in Portuguese. (2 to 4) Tutorial, to be arranged. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. Eight units of courses 197 and/or 199 may be applied toward major requirements. May be repeated for maximum of 8 units. Individual contract required. P/NP or letter grading.

199. Directed Research in Portuguese. (2 to 4) Tutorial, to be arranged. Requisite: course 105. Limited to juniors/seniors. Supervised individual research under guidance of faculty mentor. Culminating paper required. Eight units of courses 197 and/or 199 may be applied toward major requirements. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

M200. Research Resources. (4) (Same as Spanish M200.) Lecture, three hours. Identification and use of research resources for graduate students.

M201A-M201B. Literary Theory and Criticism. (4-4) (Same as Spanish M201A-M201B.) Lecture, three hours. Definition, discussion, and application of main currents of contemporary literary theory and criticism. Letter grading.

202. Synchronic Morphology and Phonology. (4) Lecture, three hours. Study of theoretical synchronic linguistics as applied to Portuguese.

204A-204B. Generative Grammar. (4-4) Lecture, three hours. Course 204A is requisite to 204B. Generative approach to the Portuguese language, with some consideration of bearing of syntax, semiology, and phonology on style, metaphor, and meter.

M205A-M205B. Development of Portuguese and Spanish Languages. (4-4) (Same as Spanish M205A-M205B.) Lecture, three hours. Intensive study of historical development of Portuguese and Spanish languages from their origin in spoken Latin.

C224. Early Portuguese Literature. (4) Lecture, three hours. Requisite: course 105. Study of main genres of medieval Portuguese and Galician literature through representative works. Concurrently scheduled with course C124. S/U or letter grading.

C225. Camões and Portuguese Renaissance. (4) Lecture, three hours. Requisite: course 105. Study of main genres of Renaissance Portuguese literature, with particular emphasis on works of Luis de Camões. Concurrently scheduled with course C125. S/U or letter grading.

C226. Baroque and Neoclassical Portuguese Literature. (4) Lecture, three hours. Requisite: course 105. Study of main genres of baroque and neoclassical Portuguese literature through representative works. May be concurrently scheduled with course C126. S/U or letter grading.

C227. 19th-Century Portuguese Literature. (4) Lecture, three hours. Requisite: course 105. Study of principal features through representative works. May be repeated for credit with topic change. Concurrently scheduled with course C127. S/U or letter grading.

C228. Post-Romanticism and Naturalism in Portuguese Literature. (4) Lecture, three hours. Requisite: course 105. Study of principal features through representative works. May be concurrently scheduled with course C128. S/U or letter grading.

C229. 20th-Century Portuguese Literature. (4) Lecture, three hours. Requisite: course 105. Study of representative trends and authors. May be repeated for credit with topic change. Concurrently scheduled with course C129. S/U or letter grading.

C231. Colonial Brazilian Literature and Culture. (4) Lecture, three hours. Requisite: course 105. Study of most important authors to 1830. May be repeated for credit with topic change. Concurrently scheduled with course C131. S/U or letter grading.

C232. 19th-Century Brazilian Literature and Culture. (4) Lecture, three hours. Requisite: course 105. Study of representative trends and authors. May be repeated for credit with topic change. Concurrently scheduled with course C132. S/U or letter grading.

C233. Machado de Assis. (4) Lecture, three hours. Requisite: course 105. Study of selected works by Joaquim Maria Machado de Assis. Concurrently scheduled with course C133. S/U or letter grading.

C234. Brazilian Modernism. (4) Lecture, three hours. Requisite: course 105. Study of principal characteristics of Brazilian modernism through representative works. Concurrently scheduled with course C134. S/U or letter grading.

C235. 20th-Century Brazilian Literature. (4) Lecture, three hours. Requisite: course 105. Study of representative trends and authors. May be repeated for credit with topic change. Concurrently scheduled with course C135. S/U or letter grading.

M249. Folk Literature of Spanish and Portuguese Worlds. (4) (Same as Spanish M249.) Lecture, three hours. Intensive study of folk literature of Spanish and Portuguese cultures as represented in (1) ballad and poetry, (2) narrative and drama, (3) speech. S/U or letter grading.

M251A-M251B. Studies in Galego-Portuguese and Old Spanish. (4-4) (Same as Spanish M251A-M251B.) Lecture, two hours. Study of problems related to historical development of Galego-Portuguese and Old Spanish. Each course may be repeated once with topic change and consent of appropriate guidance committee.

252. Studies in Early Portuguese Literature. (4) Discussion, two hours. S/U or letter grading.

253. Studies in Modern Portuguese Literature. (4) Discussion, two hours. S/U or letter grading.

254. Studies in Early Brazilian Literature. (4) Discussion, two hours. S/U or letter grading.

255. Studies in Modern Brazilian Literature. (4) Discussion, two hours. S/U or letter grading.

256A-256B. Studies in Portuguese Linguistics. (4-4) Lecture, two hours. Study of problems in analysis and description of contemporary Portuguese language. S/U or letter grading.

290. Special Topics. (4) Discussion, two hours. Designed for graduate students. Consult *Schedule of Classes* or department counselor for topics to be offered in a specific term. S/U or letter grading.

370. Teaching Portuguese in Secondary School. (4) Discussion, three hours. Designed for future teachers in this field. Letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or

fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

596. Directed Individual Study or Research. (4 to 8) Tutorial, to be arranged. Study or research in areas or subjects not offered as regular courses. No more than 8 units may be applied toward M.A. course requirements. S/U or letter grading.

597. Preparation for Graduate Examinations. (4 to 12) Tutorial, to be arranged. Preparation: official acceptance of candidacy by department. Individual preparation for M.A. comprehensive examination or Ph.D. qualifying examinations. May be taken only once for each degree examination and only in term that comprehensive or qualifying examinations are to be taken. S/U grading.

598. Research for M.A. Thesis. (4 to 12) Tutorial, to be arranged. Research in preparation of M.A. thesis. S/U grading.

599. Research for Ph.D. Dissertation. (4 to 8) Tutorial, to be arranged. Limited to students who have passed Ph.D. qualifying examinations. Research for and preparation of Ph.D. dissertation. S/U grading.

Spanish

Lower Division Courses

1. Elementary Spanish. (4) Discussion, five hours; laboratory, one hour. P/NP or letter grading.

1G. Reading Course for Graduate Students. (4) Lecture, three hours. Knowledge of Spanish not required. May not be applied toward degree requirements. S/U grading.

2. Elementary Spanish. (4) Discussion, five hours; laboratory, one hour. Enforced requisite: course 1. P/NP or letter grading.

2A. Intensive Spanish. (4) Lecture, 20 hours; laboratory, five hours. Enforced requisite: course 1 or one year of high school Spanish. Intensive basic course in Spanish, with cultural activities, field trips, luncheons. Offered in summer only. P/NP or letter grading.

2G. Reading Course for Graduate Students. (4) Lecture, three hours. Enforced requisite: course 1G. May not be applied toward degree requirements. S/U grading.

3. Elementary Spanish. (4) Discussion, five hours; laboratory, one hour. Enforced requisite: course 2. P/NP or letter grading.

3A. Intensive Spanish. (4) Lecture, 20 hours; laboratory, five hours. Enforced requisite: course 1 or one year of high school Spanish. Intensive basic course in Spanish, with cultural activities, field trips, luncheons. Offered in summer only. P/NP or letter grading.

4. Intermediate Spanish. (4) Discussion, five hours; laboratory, one hour. Enforced requisite: course 3. P/NP or letter grading.

5. Intermediate Spanish. (4) Discussion, five hours; laboratory, one hour. Enforced requisite: course 4. P/NP or letter grading.

6. Intermediate Spanish. (4) Discussion, five hours. Enforced requisite: course 5. Review and analysis of more sophisticated and complex syntactic structures of Spanish, verb morphology, and lexical discrimination. Students who have completed course 5 with grade of A– or better may enroll directly in course 25. P/NP or letter grading.

7. Intermediate Spanish for Spanish Speakers. (4) Discussion, four hours. Preparation: proficiency as determined by placement test. Concentration on formal aspects of language (i.e., spelling, punctuation, accentuation, composition, reading, and traditional grammar) in lieu of course 6. P/NP or letter grading.

8A-8B. Spanish Conversation. (2-2) Discussion, three hours. Course 8A is open to students with credit for course 4. Students who have completed course 3 with grade of B or better may be admitted. P/NP or letter grading.

9A-9B. Advanced Conversation. (2-2) Discussion, three hours. Enforced requisite: course 8B. P/NP or letter grading.

10. Intensive Elementary Spanish. (12) Lecture, 20 hours. Intensive elementary instruction in speaking, listening, reading, and writing equivalent to courses 1, 2, and 3, with emphasis on Spanish grammar and Hispanic culture. Offered in summer only. P/NP or letter grading.

25. Advanced Conversation and Composition. (4) Lecture, three hours. Enforced requisite: course 6. Emphasis on development of communicative abilities, both verbal and written, as well as on increasing comprehension of variety of forms of cultural production in Spanish language and on preparation for more advanced Spanish courses. P/NP or letter grading.

27. Composition for Spanish Speakers. (4) Lecture, three hours. Enforced requisite: course 5. Practice in reading and writing of Spanish for students with oral proficiency in Spanish (in lieu of course 25). P/NP or letter grading.

28A. Spanish for Special Purposes: Medical. (4) Lecture, three hours. Enforced requisite: course 6. Practice in speaking, reading, and writing Spanish using appropriate vocabulary and cultural situations for students with special interest in fields such as medicine, business, law, etc. P/NP or letter grading.

M35. Spanish, Portuguese, and Nature of Language. (5) (Same as Portuguese M35.) Lecture, three hours; discussion, one hour. Introduction to language study within context of Romance languages, focusing on Spanish and Portuguese. Nature of language: structure, diversity, evolution, social and cultural settings, literary uses. Study of language and its relation to other areas of human knowledge. P/NP or letter grading.

M42. Civilization of Spain and Portugal. (5) (Same as Portuguese M42.) Lecture, three hours; discussion, one hour. Required of majors. Lectures taught in English; discussion sections taught in either Spanish or English. Highlights of civilization of Spain and Portugal, with emphasis on artistic, economic, social, and historical development as background for upper division courses. P/NP or letter grading.

M44. Civilization of Spanish America and Brazil. (5) (Same as Portuguese M44.) Lecture, three hours; discussion, one hour. Required of majors. Lectures taught in English; discussion sections taught in either Spanish or English. Highlights of civilization of Spanish America and Brazil, with emphasis on artistic, economic, social, and historical development as background for upper division courses. P/NP or letter grading.

60A-60B-60C. Hispanic Literatures in Translation. (4-4-4) Lecture, three hours. Class readings and analysis of selected works in translation. Classroom discussion, papers, and examinations in English. **60A.** Spanish Literature; **60B.** Spanish-American Literature; **60C.** *Don Quixote*.

61A-61B-61C. Hispanic Literatures in Spanish. (4-4-4) Lecture, three hours. Not open for credit to students with credit for corresponding course in 60 series. Class readings and analysis of selected works. Classroom discussion, papers, and examinations in Spanish. **61A.** Spanish Literature; **61B.** Spanish-American Literature; **61C.** *Don Quixote*.

62A-62B-62C. Hispanic Literatures and Film. (4-4-4) Lecture, three hours; film screenings, two to three hours. Analysis of main aesthetic, cultural, and philosophical questions in the Hispanic world as articulated in literature and film, addressing not only principal currents affecting Hispanic artistic expression but also diverse strategies employed by two distinct modes of representation. **62A.** Spain; **62B.** Spanish America; **62C.** The Chicano Experience.

88A-88Z. Lower Division Seminars. (4 each) Seminar, three hours. Knowledge of Spanish not essential. Variable topics courses designed to explore various themes and issues pertinent to Hispanic literature and culture.

97. Variable Topics in Spanish. (2) Lecture, two hours. Variable topics course with lectures, discussions, and papers; consult *Schedule of Classes* or department counselor for topic to be offered in specific term. May be repeated for credit. P/NP or letter grading.

Upper Division Courses

100A-100B. Introduction to Study of Spanish Grammar. (4-4) Lecture, three hours. Requisite: course M35. **100A.** Phonology and Morphology. Analysis of phonemic and morphological systems of Spanish. **100B.** Syntax. Study of syntactical systems of Spanish.

102A-102B. Catalan Language and Culture I, II. (4-4) Lecture, six hours. Introduction to oral and written Catalan language. Two-term accelerated language sequence equivalent to three terms of traditional pattern and designed for advanced undergraduate and graduate students. May not be applied as upper division elective in major. P/NP or letter grading. **102A.** Preparation: at least two years of college-level Spanish, Portuguese, or another Romance language other than Catalan. **102B.** Requisite: course 102A.

M118A-M118B. History of Portuguese and Spanish. (4-4) (Same as Portuguese M118A-M118B.) Lecture, three hours. Requisites: courses M35, 100A. Course M118A is requisite to M118B. Major features of development of Portuguese and Spanish languages from their origins in Vulgar Latin to modern times. P/NP or letter grading. **M118A.** Phonology; **M118B.** Morphology and Syntax.

119. Structure of Literary Work. (4) (Formerly numbered 119A.) Lecture, three hours. Requisite: course 25. Introduction to methods of analyzing literary work in Spanish, Spanish-American, and Chicana/Chicano literature. Special attention to four major genres: poetry, narrative, drama, and essay. P/NP or letter grading.

120. History of Literature. (4) (Formerly numbered 120A.) Lecture, three hours; discussion, one hour. Requisite: course 25. Introduction to different ways of looking at literary works as historical phenomena. Presentation of major models for writing history—great narratives, cyclic, teleological, sacred, and profane conceptions. Traditional concepts of literary history and problems of mixed categories (historical epochs versus epochs of style, national history, and world literature). P/NP or letter grading.

130. Topics in Medieval Studies. (4) (Not same as course 130 prior to Fall Quarter 2010.) Lecture, three hours. Requisite: course 25. Exploration of medieval Iberian literatures: lyric poetry, prose, and history of peninsula, with emphasis on its literary and linguistic diversity. Possible topics include *Convivencia* (peaceful coexistence), Europe and Orient, beginnings of Inquisition, oral versus written traditions, origins of Hispano-Christian expansion beyond peninsula, and flowering of Al-Andalus. May be repeated for credit with topic change. P/NP or letter grading.

135. Topics in Early Modern Studies. (4) Lecture, three hours. Requisite: course 25. Exploration of 16th and 17th centuries, with focus on early modern period of Spain and Spanish America. Possible topics include Spanish colonization and indigenous responses, transatlantic literary and visual baroque, race and religion in construction of early modern nation, transatlantic fictions, early modern identities and theatrical representations, literature and historiography, transatlantic poetics and poetry. May be repeated for credit with topic change. P/NP or letter grading.

140. Topics in Modern Studies. (4) (Not same as course 140 prior to Fall Quarter 2010.) Lecture, three hours. Requisite: course 25. Exploration of major literary movements and writers of 18th and 19th centuries in Spain and Spanish America. Possible topics include Enlightenment, Romanticism, nation-building literature, realism and naturalism, and works by Cadalso, Concolorcorvo, Lizardi, Larra, Sarmiento, Bécquer, Isaacs, Mera, Villaverde, and Galdós. May be repeated for credit with topic change. P/NP or letter grading.

144A. Mexican Literature. (4) Lecture, three hours. Requisite: course 25 or 27. Study of major movements and authors of Mexican literature. P/NP or letter grading.

144B. Mexican Culture. (4) Lecture, three hours. Requisite: course 25 or 27. Study and analysis of Mexican culture and society through variety of cultural expressions such as film, music, literature, and other popular genres. Letter grading.

144C. Special Topics in Mexican Studies. (4) Lecture, three hours. Requisite: course 25 or 27. Variable topics course with readings, discussions, and papers; consult *Schedule of Classes* or department counselor for topic to be offered in a specific term. P/NP or letter grading.

M145A-M145B. Introduction to Chicano Literature. (4-4) (Same as Chicana and Chicano Studies M145A-M145B.) Lecture, three hours. Requisite: course 25 or 27. Introduction to texts representative of the Chicano literary heritage. Sampling of genres, as well as historical and geographical settings and points of view characteristic of work written by Chicanos during the 20th century. Most required reading is in Spanish. Bilingual and English works are included and discussed. Reading and analysis of a number of important scholarly and critical statements pertaining to characteristics and development of the Chicano literary corpus. Letter grading. **M145A.** Literature to 1960; **M145B.** Literature after 1960.

M146. Chicano Narrative. (4) (Same as Chicana and Chicano Studies M146.) Lecture, three hours. Introduction to major narrative genres in Chicana/Chicano literary tradition—Corrido, Semblanza, chronicle, autobiography, novel, romance, and satire. Emphasis on way in which narrative forms are formed by and address specific social/historical problems. P/NP or letter grading.

150. Topics in Contemporary Studies. (4) Lecture, three hours. Requisite: course 25. Exploration of main trends that characterize contemporary Latin American and Spanish literatures and cultures and main concepts used to address them. Possible topics include transculturation and heterogeneity, race and ethnicity, vanguard movements, lettered and popular cultures, literary modernization in Latin American boom, literature and revolution, autobiography, women's writing, border literature, and postmodernist fiction. May be repeated for credit with topic change. P/NP or letter grading.

155. Topics in U.S. Latino Studies. (4) Lecture, three hours. Requisite: course 25. Exploration of spread of Spanish-American literature and culture throughout North America, including literatures that are outgrowth of civil rights movements of 1960s, recent demographic changes, new transnational identities, and mixed citizenships of U.S. Latinas and Latinos. Chicano, Puerto Rican, Cuban American, Central American American, South American American, and Jewish Latino literatures may be included. May be repeated for credit with topic change. P/NP or letter grading.

160. Topics in Spanish Linguistics. (4) Lecture, three hours. Requisite: course 25. Exploration of origin of language, how Spanish is acquired, evolution of Spanish from Latin to early modern period, how Spanish varies in world, how to teach Spanish, Spanish in contact with other languages. Possible topics include Spanish in Los Angeles, history of Spanish language, first- and second-language acquisition, language and cognition. May be repeated for credit with topic change. P/NP or letter grading.

M165SL. Taking It to Street: Spanish in Community. (5) (Formerly numbered 165SL.) (Same as Applied Linguistics M165SL.) Seminar, three hours; fieldwork, 10 hours. Requisite: course 25 or 27. Service learning course to give students opportunity to use cultural and linguistic knowledge acquired in Spanish classes in real-world settings. Students required to spend minimum of eight to 10 hours per week at agreed on site in Latino community. P/NP or letter grading.

170. Topics in Media, Interdisciplinary, and Trans-historical Studies. (4) Lecture, three hours. Requisite: course 25. Interrelation between print, visual, and live arts, and way they exist in mass media, new technologies, and different platforms. Possible topics include visual cultures in Latin America, Latin American and Spanish cinema, musical cultures and literature, live arts and performance in popular culture, three-dimensional modeling of material culture, and architecture of medieval Iberia. May be repeated for credit with topic change. P/NP or letter grading.

M172SL. Latinos, Linguistics, and Literacy. (5) (Formerly numbered M172.) (Same as Applied Linguistics M172SL, Chicana and Chicano Studies M170SL and Honors Collegium M128SL.) Seminar, four hours; field project, four to six hours. Recommended requisite: course 100A. In-depth study of various topics related to literacy, including different definitions of literacy, programs for adult preliterates, literacy and gender, approaches to literacy (whole language, phonics, Freire's liberation pedagogy), history of writing systems, phoneme as basis for alphabetic writing, and national literacy campaigns. Required field project involving Spanish-speaking adults in adult literacy programs. P/NP or letter grading.

175. Topics in Creative Writing and Translation. (4) Seminar, three hours. Requisite: course 25. Exploration of art of translation or creative writing. Guest speakers or instructors include professional literary translators, poets, novelists, playwrights, and filmmakers who discuss theory, methodology, and practice of their art. May be repeated for credit with topic change. P/NP or letter grading.

187A-187B. Advanced Tutorial in Community and Culture I, II. (1-2) Tutorial, one hour. Requisite: course 25 or 27. Designed as adjunct to upper division course in Hispanic literature, language, and culture. Exploration of topics in greater depth through supplemental readings, papers, community service, or other activities. Course 187A may be repeated once for credit. P/NP or letter grading.

191A. Variable Topics in Spanish: Studies in Hispanic Literature and Linguistics. (4) Seminar, three hours. Limited to 15 junior/senior Spanish majors. Variable topics course with readings, discussions, and development of culminating paper. Consult *Schedule of Classes* or department counselor for topic to be offered in specific term. P/NP or letter grading.

191B. Variable Topics in Spanish: Studies in Hispanic Culture and Civilization. (4) Seminar, three hours. Advanced variable topics course that studies diverse aspects of Hispanic culture, civilization, and history. Classroom discussions, development of culminating paper, and examinations in Spanish. P/NP or letter grading.

195. Community Internships in Spanish. (4) Tutorial, one hour; fieldwork, 10 hours. Requisite: course 25 or 27. Limited to juniors/seniors. Internship in supervised setting in community agency or business. Students meet on regular basis with instructor and provide journal of their experience. Final research paper required. May be repeated for credit. Individual contract with supervising faculty member required. P/NP or letter grading.

197. Individual Studies in Spanish. (2 to 4) Tutorial, to be arranged. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Assigned reading and tangible evidence of mastery of subject matter required. Eight units of courses 197 and/or 199 may be applied toward major requirements. May be repeated for maximum of 8 units. Individual contract required. P/NP or letter grading.

198. Senior Honors Research in Spanish. (4) Tutorial, to be arranged. Preparation: completion of required nine upper division major core courses with 3.5 grade-point average. Limited to juniors/seniors. Development and completion of honors thesis under direct supervision of faculty member. May be repeated for credit. Individual contract required. Letter grading.

199. Directed Research in Spanish. (2 to 4) Tutorial, to be arranged. Requisite: course 25. Limited to juniors/seniors. Supervised individual research under

guidance of faculty mentor. Culminating paper required. Eight units of courses 197 and/or 199 may be applied toward major requirements. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

M200. Research Resources. (4) (Same as Portuguese M200.) Lecture, three hours. Identification and use of research resources for graduate students.

M201A-M201B. Literary Theory and Criticism. (4-4) (Same as Portuguese M201A-M201B.) Lecture, three hours. Definition, discussion, and application of main currents of contemporary literary theory and criticism. Letter grading.

202A. Phonology. (4) Lecture, three hours. Study of the sound structure of Spanish and main phonological processes that map underlying representations into surface representations. Bearing of phonological theory on study of meter.

202B. Morphology. (4) Lecture, three hours. Study of derivational and inflectional word formation processes and their interaction with syntactic structure.

204A-204B. Generative Syntax and Semantics. (4-4) Lecture, three hours. Study of syntactic structure of Spanish and relation between underlying representations and logical form within a principles-and-parameters framework. Bearing of syntactic and semantic structure on study of literature.

M205A-M205B. Development of Portuguese and Spanish Languages. (4-4) (Same as Portuguese M205A-M205B.) Lecture, three hours. Intensive study of historical development of Portuguese and Spanish languages from their origin in spoken Latin.

209. Dialectology. (4) Lecture, three hours. Major dialect areas of peninsular and American Spanish, with distinguishing features of each. Influence and contribution of cultural and historical features, including indigenous languages, to their formation.

221. Medieval Lyric Poetry. (4) Lecture, three hours. Readings of and lectures on Spanish lyric poetry from the beginning to 1500.

222. Medieval Epic and Narrative Poetry. (4) Lecture, three hours. Readings of and lectures on Spanish epic and narrative poetry from the beginning to 1500.

223. Medieval Prose. (4) Lecture, three hours. Readings of and lectures on Spanish prose from the beginning to 1500.

224. Poetry of the Golden Age. (4) Lecture, three hours. Readings of and lectures on Spanish poetry from 1500 to 1700.

225. Drama of the Golden Age. (4) Lecture, three hours. Readings of and lectures on the *comedia*.

226. Prose of the Golden Age. (4) Lecture, three hours. Readings of and lectures on fictional, didactic, religious, and historical writings.

227. Cervantes. (4) Lecture, three hours. Readings of and lectures on works of Cervantes.

228. The Enlightenment. (4) Lecture, three hours. Readings of and lectures on representative works of the period.

229. Romanticism. (4) Lecture, three hours. Readings of and lectures on representative works of the period.

230. Realism and Naturalism. (4) Lecture, three hours. Readings of and lectures on literary works, principally novels, from 1850 to 1898.

231. Major Currents in Modern Spanish Literature. (4) Lecture, three hours. Introduction to major literary currents, including symbolism, Parnassianism, and the Generation of 1898.

232. Spanish Prose Literature from 1898 to the Civil War. (4) Lecture, three hours. Readings of and lectures on representative essays, novels, and short stories of the period.

233. Spanish Prose Literature after the Civil War. (4) Lecture, three hours. Readings of and lectures on representative essays, novels, and short stories of the period.

234. Spanish Drama and Poetry from 1898 to the Civil War. (4) Lecture, three hours. Readings of and lectures on representative plays and poems.

235. Spanish Drama and Poetry after the Civil War. (4) Lecture, three hours. Readings of and lectures on representative plays and poems of the period.

237. Literature of the Spanish Conquest. (4) Lecture, three hours. Readings of and lectures on chronicles, poems, and indigenous accounts of the Spanish Conquest.

238. Baroque, Enlightenment, and Neoclassicism in Colonial Literature. (4) Lecture, three hours. Readings of and lectures on representative texts.

239. Romanticism and Realism in Spanish-American Literature. (4) Lecture, three hours. Intensive study of Romanticism and realism in Spanish-American literature.

240. Major Currents in Modern Spanish-American Literature. (4) Lecture, three hours. Study of principal trends in modern Spanish-American literature, particularly *naturalismo* and *modernismo*.

241A-241B. Contemporary Spanish-American Short Story. (4-4) Lecture, three hours. Study of important short story writers from modernism to the present.

243A-243B. Contemporary Spanish-American Poetry. (4-4) Lecture, three hours. Intensive study of important poets of Spanish America from modernism to the present.

244A-244B. Contemporary Spanish-American Novel. (4-4) Lecture, three hours. Study of important novelists from modernism to the present.

245. Contemporary Spanish-American Essay. (4) Lecture, three hours. Study of important Spanish-American essayists of the 20th century.

246. Contemporary Spanish-American Drama. (4) Lecture, three hours. Study of principal Spanish-American dramatists and theater movements in the 20th century.

247. Chicano Literature. (4) Lecture, three hours. Study of major movements and authors of Mexican American literature.

M249. Folk Literature of Spanish and Portuguese Worlds. (4) (Same as Portuguese M249.) Lecture, three hours. Intensive study of folk literature of Spanish and Portuguese cultures as represented in (1) ballad and poetry, (2) narrative and drama, (3) speech. S/U or letter grading.

M251A-M251B. Studies in Galegan-Portuguese and Old Spanish. (4-4) (Same as Portuguese M251A-M251B.) Lecture, two hours. Study of problems related to historical development of Galegan-Portuguese and Old Spanish. Each course may be repeated once with topic change and consent of appropriate guidance committee.

256A-256B. Studies in Spanish Linguistics. (4-4) Lecture, two hours. Study of problems in analysis and description of the contemporary Spanish language. Each course may be repeated once with topic change and consent of appropriate guidance committee.

257. Studies in Dialectology. (4) Discussion, two hours. May be repeated once with topic change and consent of appropriate guidance committee.

262A-262B. Studies in Medieval Spanish Literature. (4-4) Discussion, two hours. Each course may be repeated once with topic change and consent of appropriate guidance committee.

264A-264B. Studies in Golden Age Spanish Literature. (4-4) Discussion, two hours. Each course may be repeated once with topic change and consent of appropriate guidance committee.

265. Cervantes. (4) Discussion, two hours. May be repeated once with topic change and consent of appropriate guidance committee.

270A-270B. Studies in 18th-Century Spanish Literature. (4-4) Discussion, two hours. Each course may be repeated once with topic change and consent of appropriate guidance committee.

271A-271B. Studies in 19th-Century Spanish Literature. (4-4) Discussion, two hours. Each course may be repeated once with topic change and consent of appropriate guidance committee.

272A-272B. Studies in 20th-Century Spanish Literature. (4-4) Discussion, two hours. Each course may be repeated once with topic change and consent of appropriate guidance committee.

277A-277B. Studies in Colonial Spanish-American Literature. (4-4) Discussion, two hours. Each course may be repeated once with topic change and consent of appropriate guidance committee.

278A-278B. Studies in 19th-Century Spanish-American Literature. (4-4) Discussion, two hours. Each course may be repeated once with topic change and consent of appropriate guidance committee.

280A-280B. Studies in Contemporary Spanish-American Literature. (4-4) Discussion, two hours. Each course may be repeated once with topic change and consent of appropriate guidance committee.

281. Studies in Chicano Literature. (4) Discussion, two hours. May be repeated once with topic change and consent of appropriate guidance committee.

286A-286B. Studies in Hispanic Folk Literature. (4-4) Lecture, two hours. Each course may be repeated once with topic change and consent of appropriate guidance committee. S/U or letter grading.

290. Special Topics. (4) Lecture, two hours. Variable topics; consult *Schedule of Classes* or department counselor for topics to be offered in a specific term. May be repeated once with topic change and consent of appropriate guidance committee.

291A-291B. Colonial Studies Research Group. (2-2) Research group meeting, two hours. Limited to graduate students. Discussion and analysis of colonial manuscripts. Specific topics vary from year to year. Production of student papers for publication and/or presentation at conferences or symposia. **291A.** S/U grading; **291B.** Prerequisite: course 291A. May be repeated for credit. S/U or letter grading.

M294. Seminar: Literary Theory. (5) (Same as Comparative Literature M294, East Asian Languages M251, English M270, French M270, German M270, Italian M270, and Scandinavian M270.) Seminar, three hours. Advanced interdisciplinary seminar to explore philosophical, historical, and critical foundations of literary theory as well as current issues in literary and cultural studies. S/U or letter grading.

296. Graduate Research Group. (2) Research group meeting, two hours. Limited to graduate students. Designed to bring together graduate students in seminar setting with one or more faculty members to discuss and critique individual research projects, especially dissertation research. S/U grading.

M299. Research Resources for European Studies. (2) (Same as French M299, German M299, Information Studies M299, Italian M299, and Slavic M299.) Lecture, two hours. Essentials of library research strategy and effective searching in key print and online resources for European and Russian studies. Through combination of lecture, online demonstration, and hands-on activities in and outside class, students understand how to efficiently use library and databases. S/U grading.

310. Teaching Spanish in Elementary School. (4) Lecture, three hours.

370. Teaching Spanish in Secondary School. (4) Lecture, three hours. S/U or letter grading.

373. Teaching Composition. (2) Designed for graduate students. Seminar on teaching writing in Spanish language courses. Introduction to composition theory. Instruction and practice in integrating writing into curriculum, setting goals and standards, designing and sequencing course materials, evaluating and commenting on papers. May not be repeated for credit. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance

and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

490. Using Technology in Foreign Language Classroom. (4) Discussion, two hours. Designed for graduate students. Theory and practice of using technology in foreign language classroom. Computer applications that facilitate instruction of grammar, discourse, culture, and composition, as well as evaluation and communication between students and instructor. S/U grading.

495. Teaching Spanish at College Level. (4) Seminar, to be arranged. Designed for graduate Spanish and Portuguese students. Basic concepts of modern theories of language and language acquisition which underlie modern methods of second language teaching. S/U grading.

596. Directed Individual Study or Research. (4 to 8) Tutorial, to be arranged. Study or research in areas or subjects not offered as regular courses. No more than 4 units may be applied toward M.A. course requirements. S/U or letter grading.

597. Preparation for Graduate Examinations. (4 to 12) Tutorial, to be arranged. Preparation: official acceptance of candidacy by department. Individual preparation for M.A. comprehensive examination or Ph.D. qualifying examinations. May be taken only once for each degree examination and only in term that comprehensive or qualifying examinations are to be taken. S/U grading.

598. Research for M.A. Thesis. (4 to 12) Tutorial, to be arranged. Research in preparation of M.A. thesis. S/U grading.

599. Research for Ph.D. Dissertation. (4 to 8) Tutorial, to be arranged. Limited to students who have passed Ph.D. qualifying examinations. Research for and preparation of Ph.D. dissertation. S/U grading.

SPEECH

See Communication Studies

STATISTICS

College of Letters and Science

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Jan de Leeuw, Ph.D., *Chair*

Professors

Peter M. Bentler, Ph.D.
William A. Clark, Ph.D.
Susan D. Cochran, Ph.D.
Dorota M. Dabrowska, Ph.D.
Jan de Leeuw, Ph.D.
Rebecca J. Emigh, Ph.D.
Sander Greenland, Ph.D.
Mark S. Handcock, Ph.D.
Mark H. Hansen, Ph.D.
Kenneth L. Lange, Ph.D.
Edward E. Leamer, Ph.D. (*Chauncey J. Medberry Professor of Management*)
Ker-Chau Li, Ph.D.
Robert D. Mare, Ph.D.
Kevin F. McCordle, Ph.D.
Frederic R. Paik Schoenberg, Ph.D.
Theodore M. Porter, Ph.D.
Dwight W. Read, Ph.D.
David L. Rigby, Ph.D.
Yingnian Wu, Ph.D.
Alan L. Yuille, Ph.D.

Song-Chun Zhu, Ph.D.

Professors Emeriti

Richard A. Berk, Ph.D.
 Thomas S. Ferguson, Ph.D.
 Robert I. Jennrich, Ph.D.
 James B. MacQueen, Ph.D.
 William M. Mason, Ph.D.
 Bengt Muthen, Ph.D.
 Judea Pearl, Ph.D.
 Sidney C. Port, Ph.D.
 N. Donald Ylvisaker, Ph.D.

Associate Professors

Christina G.S. Palmer, Ph.D., *in Residence*
 Janice L. Reiff, Ph.D.
 Hongquan Xu, Ph.D.

Assistant Professors

Hongjing Lu, Ph.D.
 Qing Zhou, Ph.D.

Senior Lecturer

Maryam M. Esfandiari, Ph.D.

Lecturers

Nicolas Christou, Ph.D.
 Gretchen G. Davis, M.S.
 Vera Ioudina, Ph.D.
 Vivian Lew, Ph.D.
 Juana Sanchez, Ph.D.

Adjunct Associate Professor

Ivaylo D. Dinov, Ph.D.

Academic Administrator

Robert L. Gould, Ph.D.

Scope and Objectives

With the advent of fast computing and the subsequent flood of data detailing almost every aspect of our daily lives comes an urgent need for scientists trained in modern statistical methodologies.

Both the undergraduate and graduate programs are structured around three core course sequences that introduce students to the science of data: theoretical statistics, data analysis, and statistical computing. This balance reflects the scale and complexity of problems that statisticians are now routinely called to address. Additional course offerings reflect the work of faculty members in bioinformatics, sensor networks, environmental studies, finance, and computer vision.

Courses and workshops for secondary school teachers of statistics are also offered in order to promote sound statistics pedagogy throughout the curriculum.

Reflecting diverse research interests, the Statistics Department is organized around several centers that collectively provide undergraduate and graduate students rich opportunities for specialized study. These include the Center for Environmental Statistics, Center for Image and Vision Sciences, Center for Statistical Computing, Center for Statistical Research in Computational Biology, and Center for the Teaching of Statistics.

Undergraduate Study

The Statistics major is a designated capstone major. Undergraduate students work in small groups to solve problems posed by real community-based or campus-based clients. The capstone gives students an opportunity to put

into practice concepts and ideas that otherwise might remain theoretical and/or abstract and to synthesize the many topics they have studied. Students should demonstrate ability to restate investigative questions in terms of statistical models or algorithms, find appropriate research literature to support their work, relate theoretical concepts to real-world problems, and clearly communicate their results to non-technical audiences.

Undergraduate Courses

Students planning to pursue advanced degrees in statistics should enroll in the Statistics 100 sequence. Most courses are offered once or twice each year; students interested in either the major or minor in Statistics should meet with the student affairs officer early in their careers.

Statistics B.S.

Capstone Major

The Statistics major is designed to provide a general introduction to the practice of statistics for students who intend to pursue study at the graduate level or seek employment in industry or government. Courses are selected to provide sufficient theoretical background for future graduate-level research work, exposure to modern techniques and practices, and experience in fields of application.

To enter the major, students should have successfully completed one lower or upper division Statistics Department course with a letter grade, have an overall grade-point average of 2.0 or better, and declare the Statistics major with the undergraduate adviser in 8117A Math Sciences, (310) 206-3742.

It is strongly recommended that students, in conjunction with the B.S. degree, pursue a minor in a substantive discipline that applies statistics. Students must consult with the undergraduate faculty adviser to ensure that the minor selected is one in which statistics is applied.

Preparation for the Major

Required: Mathematics 31A, 31B, 32A, 32B, 33A, Program in Computing 10A, and one course from Statistics 10 through 14. Each course must be completed with a grade of C or better.

Transfer Students

Transfer applicants to the Statistics major with 90 or more units must complete as many of the following introductory courses as possible prior to admission: two years of calculus, one linear algebra course, and one statistics course.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

Required: Statistics 100A, 100B, 100C, 101A, 101B, 101C, 102A, 102B, 102C, two capstone statistical consulting courses (140SL, 141SL), and two upper division elective courses selected from 130, C151 through 199, Mathemat-

ics 131A, 131B, 151A, 151B, 170B, 171, 172A, 172B. Elective courses from outside the department are selected in consultation with the undergraduate faculty adviser.

Only 4 units of course 199 may be applied toward the major. Courses 189 and 189HC may not be applied toward any of the major requirements.

Students planning to continue their study of statistics at the graduate level are strongly advised to include in their schedule as many of the following courses as possible: Mathematics 131A, 131B, 151A, 151B, 170B, 171.

Each major course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better.

Statistics Minor

The Statistics minor is designed to provide a solid background in statistics for students majoring in other disciplines.

To enter the minor, students should have successfully completed one course from Statistics 10 through 14 with a letter grade, have an overall grade-point average of 2.0 or better, and file a petition with the undergraduate adviser in 8117A Math Sciences, (310) 206-3742.

Required Lower Division Courses (9 units): Statistics 10 and Mathematics 31B.

Required Upper Division Courses (28 units): Seven upper division courses selected from one of the following options: (1) any two sequences from Statistics 100A, 100B, 100C, and 101A, 101B, 101C, and 102A, 102B, 102C, and one elective course or (2) two courses from each of the above sequences and one elective course. Electives may be selected from any upper division statistics course. Statistics 199 may be applied as one of the electives for both options. Courses 105 and 189 may not be applied toward the minor. A minimum of 20 units applied toward the minor requirements must be in addition to units applied toward major or minor requirements in another department or program.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Statistics offers Master of Science (M.S.), Candidate in Philosophy (C.Phil.), and Doctor of Philosophy (Ph.D.) degrees in Statistics.

Statistics

Lower Division Courses

10. Introduction to Statistical Reasoning. (5) Lecture, three hours; discussion, one hour; computer laboratory, two hours. Preparation: three years of high school mathematics. Not open for credit to students with credit for course 11, 12, 13, 14, or former course 10H. Introduction to statistical thinking and understanding, including strengths and limitations of basic experimental designs, graphical and numerical summaries of data, inference, regression as descriptive tool. P/NP or letter grading.

11. Introduction to Statistical Methods for Business and Economics. (5) Lecture, three hours; discussion, one hour; computer laboratory, one hour. Prerequisite or corequisite: Mathematics 3A or 31A. Not open for credit to students with credit for course 10, 10H, 12, 13, 14, 100A, 100B, 100C, Mathematics 170A, or 170B. Elements of statistical analysis. Presentation and interpretation of data; descriptive statistics; theory of probability and basic sampling distributions; statistical inference, including principles of estimation and tests of hypotheses; introduction to regression and correlation. P/NP or letter grading.

12. Introduction to Statistical Methods for Geography and Environmental Studies. (5) (Formerly numbered M12.) Lecture, four hours; discussion, one hour; laboratory, one hour. Not open for credit to students with credit for course 10, 11, or 13. Introduction to statistical thinking and understanding, with emphasis on techniques used in geography and environmental science. Underlying logic behind statistical procedures, role of variation in statistical thinking, strengths and limitations of statistical summaries, and fundamental inferential tools. Emphasis on applications in geography and environmental science in laboratory work using professional statistical analysis package, including spatial statistics. P/NP or letter grading.

13. Introduction to Statistical Methods for Life and Health Sciences. (5) Lecture, three hours; discussion, one hour; laboratory, one hour. Not open for credit to students with credit for course 10, 10H, 11, 12, or 14. Presentation and interpretation of data, descriptive statistics, introduction to correlation and regression and to basic statistical inference (estimation, testing of means and proportions, ANOVA) using both bootstrap methods and parametric models. P/NP or letter grading.

14. Introduction to Statistical Methods in Physical Sciences and Engineering. (5) Lecture, three hours; discussion, one hour; laboratory, one hour. Prerequisite: Mathematics 31A. Not open for credit to students with credit for course 10, 10H, 11, 12, or 13. Introduction to conceptual and technical aspects of statistics, with attention to applications of physical sciences and engineering. Topics include data collection and experimental design, quantifying uncertainty in measurement, descriptive statistics, introduction to time series and regression. Laboratory component to learn data analysis on real data and fundamental techniques of computer statistical analysis, including bootstrap methods. P/NP or letter grading.

35. Introduction to Probability with Applications to Poker. (4) (Formerly numbered 35B.) Lecture, three hours; discussion, one hour. Exploration of some main topics in introductory probability theory, especially discrete probability problems, that are useful in wide variety of scientific applications. Topics include conditional probability and conditional expectation, combinatorics, laws of large numbers, central limit theorem, Bayes theorem, univariate distributions, Markov processes, and Brownian motion. Examination of computer simulation in depth and discussion of computational approximations of solutions to complex problems using R, with examples of situations and concepts that arise naturally when playing Texas Hold'em and other games. P/NP or letter grading.

88. Sophomore Seminars: Statistics. (2) Seminar, two hours. Prerequisite: one course from 10, 10H, 11, 12, 13, or 14. Limited to 20 lower division students. Readings and discussions designed to introduce stu-

dents to current statistical consulting research and fieldwork disciplines. Culminating project may be required. P/NP or letter grading.

Upper Division Courses

100A. Introduction to Probability. (4) Lecture, three hours; discussion, one hour. Prerequisites: Mathematics 32B, 33A. Not open to students with credit for Electrical Engineering 131A or Mathematics 170A; open to graduate students. Students may receive credit for only two of following: courses 100A, 110A, Biostatistics 100A. Probability distributions, random variables, vectors, and expectation. P/NP or letter grading.

100B. Introduction to Mathematical Statistics. (4) Lecture, three hours; discussion, one hour. Prerequisite: course 100A or Mathematics 170A. Survey sampling, estimation, testing, data summary, one- and two-sample problems. P/NP or letter grading.

100C. Linear Models. (4) Lecture, three hours; discussion, one hour. Prerequisite: course 100B. Theory of linear models, with emphasis on matrix approach to linear regression. Topics include model fitting, extra sums of squares principle, testing general linear hypothesis in regression, inference procedures, Gauss/Markov theorem, examination of residuals, principle component regression, stepwise procedures. P/NP or letter grading.

101A. Introduction to Design and Analysis of Experiment. (4) Lecture, three hours; discussion, one hour. Prerequisites: one course from 10, 11, 12, 13, or 14, and Mathematics 32B. Fundamentals of collecting data, including components of experiments, randomization and blocking, completely randomized design and ANOVA, multiple comparisons, power and sample size, and block designs. P/NP or letter grading.

101B. Introduction to Data Analysis and Regression. (4) (Formerly numbered 120A.) Lecture, three hours; discussion, one hour. Prerequisites: Mathematics 3B or 31B, or Mathematics 32B and 33A. Recommended: course 110A. Designed for juniors/seniors. Applied regression analysis, with emphasis on general linear model (e.g., multiple regression) and generalized linear model (e.g., logistic regression). Special attention to modern extensions of regression, including regression diagnostics, graphical procedures, and bootstrapping for statistical inference. P/NP or letter grading.

101C. Introduction to Regression and Data Mining. (4) (Formerly numbered 120B.) Lecture, three hours; discussion, one hour. Enforced prerequisite: course 101B. Designed for juniors/seniors. Applied regression analysis, with emphasis on general linear model (e.g., multiple regression) and generalized linear model (e.g., logistic regression). Special attention to modern extensions of regression, including regression diagnostics, graphical procedures, and bootstrapping for statistical inference. P/NP or letter grading.

102A. Introduction to Computational Statistics with R. (4) (Formerly numbered 135.) Lecture, three hours. Prerequisites: Mathematics 3B or 31B, or Mathematics 32B and 33A. Introduction to programming and data analysis in R. P/NP or letter grading.

102B. Introduction to Computation and Optimization for Statistics. (4) (Formerly numbered 175.) Lecture, three hours; discussion, one hour. Prerequisites: course 100B, Mathematics 33A. Introduction to computational methods and optimization useful for statisticians. Use of computer programming to solve statistical problems. Topics include vector/matrix computation, multivariate normal distribution, principal component analysis, clustering analysis, gradient-based optimization, EM algorithm for missing data, and dynamic programming. P/NP or letter grading.

102C. Introduction to Monte Carlo Methods. (4) Lecture, three hours; discussion, one hour. Prerequisite: course 100B. Introduction to Markov chain Monte Carlo (MCMC) algorithms for scientific computing. Generation of random numbers from specific distribution. Rejection and importance sampling and its role in MCMC. Markov chain theory and convergence properties. Metropolis and Gibbs sampling algorithms. Extensions as simulated tempering. Theoreti-

cal understanding of methods and their implementation in concrete computational problems. P/NP or letter grading.

105. Statistics for Engineers. (4) Lecture, three hours; discussion, one hour. Prerequisite: course 100A or Electrical Engineering 131A or Mathematics 170A. Foundation of basic concepts and techniques of statistics. Topics include sampling distributions, statistical estimation (including maximum likelihood estimation), statistical intervals, and hypothesis testing, with emphasis on application of these concepts. Discussion of methods for checking whether assumptions required for mathematical foundations are appropriate for given set of data. P/NP or letter grading.

112. Statistical Methods for Social Sciences. (5) Lecture, three hours; discussion, one hour. Prerequisite: course 10. Limited to juniors/seniors. Statistical methods in social sciences, including regression, multivariate techniques, logistic regression, and data-handling and analysis. Applications to social sciences, using professional statistical analysis software package for data analysis. Letter grading.

C116. Social Statistics. (4) Lecture, three hours. Preparation: some knowledge of basic calculus and linear algebra. Prerequisites: courses 100A and 100B, or 101B and 101C, or 110A and 110B, or one course from 10, 11, 12, 13 and one upper division statistics course using regression. Designed for social sciences graduate students and advanced undergraduate students seeking training in data issues and methods employed in social sciences. Concurrently scheduled with course C216. P/NP or letter grading.

130. Getting Up to Speed with SPSS, Stata, SAS, and R. (4) (Formerly numbered 130A.) Lecture, three hours. Preparation: basic statistics, basic computer literacy. Study of four commonly employed solutions—SPSS (Statistical Package for Social Sciences), Stata, SAS (Statistical Analysis System), and R—for data analytic and statistical issues in health sciences, engineering, economics, and government. Emphasis on applied problem solving, measurement issues in data analysis, use of computer for analysis of large-scale data. P/NP or letter grading.

140SL. Practice of Statistical Consulting. (4) Lecture, one hour; discussion, two hours. Enforced prerequisites: courses 88, 100B, 101B, one course from 130A through 130D. Limited to seniors. Opportunity to solve real data analysis problems for real community-based or campus-based clients. Students work in small groups with faculty member and client to frame client's question in statistical terms, create statistical model, analyze data, and report results. Weekly meetings in classroom setting to study basic consulting skills, share experiences, exchange ideas, and make reports. On-site visits as necessary. Courses 140SL and 141SL must be taken in consecutive terms. In Progress grading (credit to be given only on completion of course 141SL).

141SL. Practice of Statistical Consulting. (4) Seminar, one hour; research group meeting, two hours. Enforced prerequisite: course 140SL. Limited to seniors. Opportunity to solve real data analysis problems for real community-based or campus-based clients. Students work in small groups with faculty member and client to frame client's question in statistical terms, create statistical model, analyze data, and report results. Weekly meetings in classroom setting to study basic consulting skills, share experiences, exchange ideas, and make reports. On-site visits as necessary. Courses 140SL and 141SL must be taken in consecutive terms. Letter grading.

C151. Experimental Design. (4) Lecture, three hours. Prerequisite: course 100C or 101B or 110B. Basic principles, analysis of variance, randomized block designs, Latin squares, balanced incomplete block designs, factorial designs, fractional factorial designs, minimum aberration designs, robust parameter designs. Concurrently scheduled with course C225. P/NP or letter grading.

153. Statistical Analysis with Missing Data. (4) Lecture, three hours. Prerequisite: course 102A. Study of methods dealing with nonresponse and missing data, including introduction to terminology, limitations

of simple methods, and modern methods for dealing with missing data, such as EM algorithm and multiple imputation. P/NP or letter grading.

M154. Measurement and Its Applications. (4) (Same as Psychology M144.) Lecture, three hours. Requisite: one course from 10, 11, 12, 13, 14, or Psychology 100A. Selected theories for quantification of psychological, educational, social, and behavioral science data. Classical test, factor analysis, generalizability, item response, optimal scaling, ordinal measurement, computer-adaptive, and related theories. Construction of tests and measures and their reliability, validity, and bias. P/NP or letter grading.

C155. Applied Sampling. (4) (Formerly numbered C135.) Lecture, three hours; discussion, one hour. Designed for upper division and graduate students in social or life sciences and those who plan to major in Statistics. Topics include methods of sampling from finite populations, sources of sampling and estimation bias, and methods of generating efficient and precise estimates of population characteristics. Practical applications of sampling methods via lectures and hands-on laboratory exercises. Concurrently scheduled with course C248. P/NP or letter grading.

C156. Data Management. (4) Lecture, three hours. Requisite: one course from 10, 11, 12, 13, or 14. Proper methods by which researchers should create, document, maintain, and utilize statistical databases. Basics of raw data formats to completion of data archive. Concurrently scheduled with course C235. P/NP or letter grading.

157. Probability and Statistics Data Modeling and Analysis using Statistics Online Computational Resource. (4) Lecture, three hours; discussion, one hour. Preparation: one engineering, mathematics, physics, or statistics course. Recommended requisite: Program in Computing 20A. Probability and statistics topics in data-driven and interactive manner using open Internet resources. Varieties of data, study-designs, and applications arising from biomedical, research, and simulated data to prepare students for innovative multidisciplinary research. Use of Statistics Online Computational Resource (SOCR). P/NP or letter grading.

C160. Site-Specific Topics. (4) Seminar, three hours. Tracking of invisible flows of data through greater Los Angeles metropolitan area, with focus on small number of specific sites situated prominently in both physical and virtual (data) spaces. Documentation of kinds of data that originate, terminate, or simply route through each location. Consideration of analyses (visual, computational, or simply informal), decisions that are made, and actions that are taken on basis of these data, whether they be human or automated responses. Documentation of how patterns of data acquisition and analysis dictate behaviors, enable or restrict movements, and shape local community. Alterations or additions to data flows that could improve quality of life for inhabitants of or visitors to sites. May be repeated for credit; however, only one C160 may be applied toward major or minor requirements. Concurrently scheduled with course C260. P/NP or letter grading.

C161. Introduction to Pattern Recognition and Machine Learning. (4) (Formerly numbered 161.) Lecture, three hours. Requisites: course 100B, Mathematics 33A. Introduction to pattern analysis and machine intelligence designed for advanced undergraduate and graduate students. May not be applied toward M.S. or Ph.D. requirements. Concurrently scheduled with course C261. P/NP or letter grading.

170. Introduction to Time-Series Analysis. (4) Lecture, three hours; discussion, one hour. Requisite: course 100C or 101B. Exploration of standard methods in temporal and frequency analysis used in analysis of numerical time-series data. Examples provided throughout, and students implement techniques discussed. P/NP or letter grading.

M171 Introduction to Spatial Statistics. (4) (Same as Geography M171.) Lecture, three hours; laboratory, one hour. Requisite: one course from 10, 11, 12, 13, or 14. Introduction to methods of measurement and interpretation of geographic distributions and associations. P/NP or letter grading.

C173. Applied Geostatistics. (4) Lecture, three hours; discussion, one hour. Requisite: course 100C (may be taken concurrently) or 101B or 110B. Geostatistics can be applied to many problems in other disciplines such as hydrology, traffic, air and water pollution, epidemiology, economics, geography, waste management, forestry, oceanography, meteorology, and agriculture and, in general, to every problem where data are observed at geographic locations. Acquisition of knowledge from different areas that can be used to analyze real spatial data problems and to connect geostatistics with geographic information systems (GIS). Concurrently scheduled with course C273. P/NP or letter grading.

C180. Introduction to Bayesian Statistics. (4) Lecture, three hours; discussion, one hour. Enforced requisites: courses 100A (or Mathematics 170A), 100B, Mathematics 32B, 33B. Designed for juniors/seniors. Introduction to statistical inference based on use of Bayes theorem, covering foundational aspects, current applications, and computational issues. Topics include Stein paradox, nonparametric Bayes, and statistical learning. Examples of applications vary according to interests of students. Concurrently scheduled with course C236. P/NP or letter grading.

182. Fundamentals of Scientific Writing. (2) (Formerly numbered C182.) Seminar, one hour. Development and perfection of student written communication skills through variety of scientific writing and reading assignments. Objectives and techniques of scientific writing and practice with different forms of professional writing. Analysis of quality of writing, including control, clarity, grammar, and mechanics. P/NP or letter grading.

C183. Statistical Models in Finance. (4) Lecture, three hours. Requisite: course 100B or 110B. Designed for juniors/seniors and graduate students. Statistical techniques in investment theory using real market data. Portfolio management, risk diversification, efficient frontier, single index model, capital asset pricing model (CAPM), beta of a stock, European and American options (Black/Scholes model, binomial model). Concurrently scheduled with course C283. P/NP or letter grading.

C184. Scientific Writing. (2) Seminar, one hour. Development of oral and written presentations of statistical data. Objectives and techniques of scientific writing and practice with different forms of professional writing. Participation in oral presentations of student work. Concurrently scheduled with course C294. P/NP or letter grading.

186. Careers in Statistics. (1) Seminar, one hour. Discussion of applications of statistics by weekly guest speakers. How statistics is applied to legal questions, economic decisions, arts, environment, and other fields, with some emphasis on career paths in statistics. P/NP grading.

187. Current Topics in Statistics. (4) Lecture, three hours. Limited to juniors/seniors. Study of selected current topics in statistics. May not be repeated. P/NP or letter grading.

195. Community or Corporate Internships in Statistics. (4) Tutorial, four hours. Limited to juniors/seniors. Internship in supervised setting in community agency or business. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for credit. Individual contract with supervising faculty member required. P/NP or letter grading.

199. Directed Research in Statistics. (1 to 4) Tutorial, one hour. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

200A. Applied Probability. (4) Lecture, three hours. Requisite: course 100A or Mathematics 170A. Limited to graduate statistics students. Simulation, renewal theory, martingale, and selected topics from queuing, reliability, speech recognition, computational biology, mathematical finance, epidemiology. S/U or letter grading.

200B. Theoretical Statistics. (4) Lecture, three hours. Sufficiency, exponential families, least squares, maximum likelihood estimation, Bayesian estimation, Fisher information, Cramér/Rao inequality, Stein's estimate, empirical Bayes, shrinkage and penalty, confidence intervals. Likelihood ratio test, p-value, false discovery, nonparametrics, semi-parametrics, model selection, dimension reduction. S/U or letter grading.

200C. Large Sample Theory, Including Resampling. (4) Lecture, three hours. Enforced requisite: course 200B. Asymptotic properties of tests and estimates, consistency and efficiency, likelihood ratio tests, chi-squared tests. S/U or letter grading.

201A. Research Design, Sampling, and Analysis. (4) Lecture, three hours. Designed for graduate students. Basic principles, ANOVA block designs, factorial designs, unequal probability sampling, regression estimation, stratified sampling, and cluster sampling. S/U or letter grading.

201B. Regression Analysis: Model Building, Fitting, and Criticism. (4) Lecture, three hours. Enforced requisite: course 201A. Designed for graduate students. Applied regression analysis, with emphasis on general linear model (e.g., multiple regression) and generalized linear model (e.g., logistic regression). Special attention to modern extensions of regression, including regression diagnostics, graphical procedures, and bootstrapping for statistical inference. S/U or letter grading.

201C. Advanced Modeling and Inference. (4) Lecture, three hours. Strongly recommended requisites: courses 200B, 201B. Designed for graduate students. Introduction to advanced topics in statistical modeling and inference, including Bayesian hierarchical models, missing data problems, mixture modeling, additive modeling, hidden Markov models, and Bayesian networks. Coverage of computational methods used and developed for these models and problems, such as EM algorithm, data augmentation, dynamic programming, and belief propagation. S/U or letter grading.

202A. Statistics Programming. (4) Lecture, three hours. Topics include programming environments/languages such as UNIX, UNIX shell, Python, R, and Processing and data technologies/formats such as relational databases/SQL and XML, with emphasis on complex data types, including large collections of textual data, GPS traces, network logs, and various online sources. S/U or letter grading.

202B. Matrix Algebra and Optimization. (4) Lecture, three hours. Recommended requisite: course 202A. Survey of computational methods that are especially useful for statistical analysis, with implementations in statistical package R. Topics include matrix analysis, multivariate regression, principal component analysis, multivariate analysis, and deterministic optimization methods. S/U or letter grading.

202C. Monte Carlo Methods for Optimization. (4) Lecture, three hours. Requisite: course 202B. Monte Carlo methods and numerical integration. Importance and rejection sampling. Sequential importance sampling. Markov chain Monte Carlo (MCMC) sampling techniques, with emphasis on Gibbs samplers and Metropolis/Hastings. Simulated annealing. Exact sampling with coupling from past. Permutation testing and bootstrap confidence intervals. S/U or letter grading.

204. Nonparametric Function Estimation and Modeling. (4) Lecture, three hours. Requisite: course 200A. Introduction to many useful nonparametric techniques such as nonparametric density estimation, nonparametric regression, and high-dimensional statistical modeling. Some semiparametric techniques and functional data analysis. Letter grading.

M211. Analysis of Data with Qualitative and Limited Dependent Variables. (4) (Same as Sociology M242.) Lecture, three hours. Requisites: courses 100A, 100B, and 100C, or Sociology 210A and 210B. Models for binary, polytomous, and ordered outcomes; censored and truncated dependent variables; sample selection bias and qualitative response models; count outcomes; multilevel models; log-linear models. S/U or letter grading.

212. Program Evaluation and Policy Analysis. (4) Lecture, three hours. Requisite: course 101C. Primary focus on methods of program evaluation. Randomized experiments, observational studies, and topics such as matching, stratification, covariance adjustments, and sensitivity analyses. Letter grading.

M213. Applied Event History Analysis. (4) (Same as Sociology M213B.) Lecture, three hours. Preparation: exposure to binary response models. Requisites: Sociology 210A, 210B. Introduction to regression-like analyses in which outcome is "time to event." Topics include logit models for discrete-time event history models; piecewise exponential hazards models; proportional hazards; nonproportional hazards; parametric survival models; heterogeneity; multilevel survival models. S/U or letter grading.

C216. Social Statistics. (4) Lecture, three hours. Designed for social sciences graduate students and advanced undergraduate students seeking training in data issues and methods employed in social sciences. Concurrently scheduled with course C116. S/U or letter grading.

218. Generalized Linear Models. (4) Lecture, three hours. Requisite: course 100C or 101B. Nonlinear models, estimation, diagnostics, statistical inference. Applications to models defined by systems of differential equations and robust regression. Introduction to generalized linear models and categorical data analysis. S/U or letter grading.

M221. Time-Series Analysis. (4) (Same as Earth and Space Sciences M204.) Lecture, three hours. Designed for graduate students. Exploration of methods for analyzing numerical time-series data. Basic topics in temporal and frequency analysis, followed by more recent topics. Examples in various fields including economics, signal processing, and atmospheric sciences. S/U or letter grading.

M222. Spatial Statistics. (4) (Same as Geography M272 and Urban Planning M215.) Lecture, three hours. Designed for graduate students. Survey of modern methods used in analysis of spatial data. Implementation of various techniques using real data sets from diverse fields, including neuroimaging, geography, seismology, demography, and environmental sciences. S/U or letter grading.

C225. Experimental Design. (4) Lecture, three hours. Requisite: course 100C or 101B or 110B. Basic principles, analysis of variance, randomized block designs, Latin squares, balanced incomplete block designs, factorial designs, fractional factorial designs, minimum aberration designs, robust parameter designs. Concurrently scheduled with course C151. S/U or letter grading.

M230. Statistical Computing. (4) (Same as Biomathematics M280 and Biostatistics M280.) Lecture, three hours. Requisites: course 100C, Mathematics 115A. Introduction to theory and design of statistical programs: computing methods for linear and nonlinear regression, dealing with constraints, robust estimation, and general maximum likelihood methods. Letter grading.

M231. Pattern Recognition and Machine Learning. (4) (Same as Computer Science M276A.) Lecture, three hours. Designed for graduate students. Fundamental concepts, theories, and algorithms for pattern recognition and machine learning that are used in computer vision, image processing, speech recognition, data mining, statistics, and computational biology. Topics include Bayesian decision theory, parametric and nonparametric learning, clustering, complexity (VC-dimension, MDL, AIC), PCA/ICA/TCA, MDS, SVM, boosting. S/U or letter grading.

M232A. Statistical Modeling and Learning in Vision and Science. (4) (Formerly numbered 232A.) (Same as Computer Science M266A.) Lecture, three hours. Preparation: basic statistics, linear algebra (matrix analysis), computer vision. Computer vision and pattern recognition. Study of four types of statistical models for modeling visual patterns: descriptive, causal Markov, generative (hidden Markov), and discriminative. Comparison of principles and algorithms

for these models; presentation of unifying picture. Introduction of minimax entropy and EM-type and stochastic algorithms for learning. S/U or letter grading.

M232B. Statistical Computing and Inference in Vision and Image Science. (4) (Formerly numbered 232B.) (Same as Computer Science M266B.) Lecture, three hours. Preparation: basic statistics, linear algebra (matrix analysis), computer vision. Introduction to broad range of algorithms for statistical inference and learning that could be used in vision, pattern recognition, speech, bioinformatics, data mining. Topics include Markov chain Monte Carlo computing, sequential Monte Carlo methods, belief propagation, partial differential equations. S/U or letter grading.

233. Statistical Methods in Biomedical Imaging. (4) Lecture, three hours. Requisite: course 100A. Brief review of common general statistical techniques. Advanced statistical methods for analysis of medical imaging, integration, visualization, interrogation, and interpretation of imaging and nonimaging metadata. S/U or letter grading.

234. Statistics and Information Theory. (4) Lecture, three hours. Preparation: introductory probability theory course. While data compression and transmission are fundamental problems in information theory, field provides insights into fundamentally statistical problems of estimation, prediction, and model selection. Even new concepts of randomness emerge from this line of research. S/U or letter grading.

C235. Data Management. (4) Lecture, three hours. Requisite: one course from 10, 11, 12, 13, or 14. Proper methods by which researchers should create, document, maintain, and utilize statistical databases. Basics of raw data formats to completion of data archive. Concurrently scheduled with course C156. S/U or letter grading.

C236. Introduction to Bayesian Statistics. (4) Lecture, three hours; discussion, one hour. Designed for graduate students. Introduction to statistical inference based on use of Bayes theorem, covering foundational aspects, current applications, and computational issues. Topics include Stein paradox, nonparametric Bayes, and statistical learning. Examples of applications vary according to interests of students. Concurrently scheduled with course C180. S/U or letter grading.

M237. Data and Media Arts. (4) (Same as Design I Media Arts M259.) Studio, six hours. Through expanding reach of telecommunications networks and general advancement of data collection technologies, almost every aspect of our lives can be "rendered" in data. Contemplation of use of data in creation of media art and examination of each step in process of data collection, analysis, and representation. Topics include databases and data warehousing, exploratory analysis and visualization, clustering and pattern finding, sampling, and various data mining algorithms. Exploration, through discussions, of fundamental concepts like complexity and randomness. Techniques that organize data, search for patterns, and create meaningful and/or expressive representations. Letter grading.

238. Vision as Bayesian Inference. (4) Lecture, three hours. Requisite: course 100A or 200A. Formulation of vision as Bayesian inference using models developed for designing artificial vision systems. Applied to statistics, they define ideal observer models that can be used to model human performance and serve a benchmark. S/U or letter grading.

239. Probabilistic Models of Cognition. (4) Seminar, three hours; discussion, one hour. Requisites: course 100B, Computer Science 180, Mathematics 33A. Modeling aspects of human cognition, designing artificial intelligence systems. Introduction to conceptual foundations and basic mathematical and computational techniques. Topics illustrated on different aspects of cognition. S/U or letter grading.

240. Multivariate Analysis. (4) Lecture, three hours. Requisite: course 200B. Distributions in several dimensions, partial and multiple correlation. Normal distribution theory, Wishart distribution, Hotelling T^2 . Principal components, canonical correlation, discriminant analysis. Introduction to linear structural relations and factor analysis. Letter grading.

M241. Causal Inference. (4) (Same as Computer Science M262C.) Lecture, four hours. Requisite: Computer Science 112 or equivalent probability theory course. Techniques of using computers to interpret, summarize, and form theories of empirical observations. Mathematical analysis of trade-offs between computational complexity, storage requirements, and precision of computerized models. Letter grading.

M242. Multivariate Analysis with Latent Variables. (4) (Same as Political Science M208D and Psychology M257.) Lecture, three hours. Introduction to models and methods for analysis of data hypothesized to be generated by unmeasured latent variables, including latent variable analogues of traditional methods in multivariate analysis. Causal modeling: theory testing via analysis of moment structures. Measurement models such as confirmatory, higher-order, and structured-means factory analytic models. Structural equation models, including path and simultaneous equation models. Parameter estimation, hypothesis testing, and other statistical issues. Computer implementation. Applications. S/U or letter grading.

M243. Logic, Causation, and Probability. (4) (Same as Epidemiology M204.) Lecture, four hours. Preparation: two terms of statistics or probability and statistics. Recommended requisite: Epidemiology 200C. Principles of deductive logic and causal logic using counterfactuals. Principles of probability logic and probabilistic induction. Causal probability logic using directed acyclic graphs. S/U or letter grading.

M244. Statistical Analysis with Latent Variables. (4) (Same as Education M231E.) Lecture, three hours. Requisites: Education 231A, 231B. Extends path analysis (causal modeling) by considering models with measurement errors and multiple indicators of latent variables. Confirmatory factor analysis, covariance structure modeling, and multiple-group analysis. Identification, estimation, testing, and model building considerations. Letter grading.

M245. History of Statistics. (4) (Same as History M296.) Seminar, three hours. History of statistics ranges over vast and diverse territory. Development of mathematical methods; philosophical, political, and social issues that were linked to their emergence and use. S/U or letter grading.

246. Statistical Model Selection. (4) Lecture, three hours. Preparation: basic knowledge of calculus, linear algebra, and computer programming. Modern methods for constructing and evaluating statistical models, including non-Bayesian and Bayesian statistical modeling approaches. Discussion of theoretical parts and data analysis. Letter grading.

C248. Applied Sampling. (4) Lecture, three hours; discussion, one hour. Designed for upper division and graduate students in social or life sciences and those who plan to major in Statistics. Topics include methods of sampling from finite populations, sources of sampling and estimation bias, and methods of generating efficient and precise estimates of population characteristics. Practical applications of sampling methods via lectures and hands-on laboratory exercises. Concurrently scheduled with course C155. S/U or letter grading.

M250. Statistical Methods for Epidemiology. (4) (Same as Biostatistics M211 and Epidemiology M211.) Lecture, four hours. Preparation: two terms of statistics (such as Biostatistics 100A, 100B). Requisites: Epidemiology 200B, 200C. Concepts and methods tailored for analysis of epidemiologic data, with emphasis on tabular and graphical techniques. Expansion of topics introduced in Epidemiology 200B and 200C and introduction of new topics, including principles of epidemiologic analysis, trend analysis, smoothing and sensitivity analysis. S/U or letter grading.

M251. Statistical Methods for Life Sciences. (4) (Same as Ecology and Evolutionary Biology M216.) Lecture, three hours. Requisite: course 13. Fundamentals of statistics as applied in life sciences, including statistical inferences for continuous and categorical data (estimation, testing of means and proportions, ANOVA) study design, linear regression, and

introduction to principle components analysis. Methods to be implemented on computer with SAS. S/U or letter grading.

253. Statistical Methods for Ecology and Population Biology. (4) Lecture, three hours. Designed for graduate students. Conceptual underpinnings of modern applied statistical analysis to prepare students to think critically about data and statistical models used in biological sciences. S/U or letter grading.

M254. Statistical Methods in Computational Biology. (4) (Same as Bioinformatics M271 and Biomathematics M271.) Lecture, three hours; discussion, one hour. Preparation: elementary probability concepts. Requisite: course 100A or 200A or Bioinformatics M260A. Introduction to statistical methods developed and widely applied in several branches of computational biology, such as gene expression, sequence alignment, motif discovery, comparative genomics, and biological networks, with emphasis on understanding of basic statistical concepts and use of statistical inference to solve biological problems. Letter grading.

257. Design, Analysis, and Modeling for Embedded Sensing. (4) Lecture, three hours; discussion, one hour. Recommended preparation: knowledge of probability and regression analysis. Limited to graduate students. Analysis of data produced by embedded sensing, which is product of several technological advances such as low-power computing and communications platforms, and robot devices. S/U or letter grading.

C260. Site-Specifics Topics. (4) Seminar, three hours. Tracking of invisible flows of data through greater Los Angeles metropolitan area, with focus on small number of specific sites situated prominently in both physical and virtual (data) spaces. Documentation of kinds of data that originate, terminate, or simply route through each location. Consideration of analyses (visual, computational, or simply informal), decisions that are made, and actions that are taken on basis of these data, whether they be human or automated responses. Documentation of how patterns of data acquisition and analysis dictate behaviors, enable or restrict movements, and shape local community. Alterations or additions to data flows that could improve quality of life for inhabitants of or visitors to sites. May be repeated for credit; however, only one C260 may be applied toward any graduate degree. Concurrently scheduled with course C160. S/U or letter grading.

C261. Introduction to Pattern Recognition and Machine Learning. (4) Lecture, three hours. Requisites: course 100B, Mathematics 33A. Introduction to pattern analysis and machine intelligence designed for advanced undergraduate and graduate students. Concurrently scheduled with course C161. S/U or letter grading.

C273. Applied Geostatistics. (4) Lecture, three hours; discussion, one hour. Geostatistics can be applied to many problems in other disciplines such as hydrology, traffic, air and water pollution, epidemiology, economics, geography, waste management, forestry, oceanography, meteorology, and agriculture and, in general, to every problem where data are observed at geographic locations. Acquisition of knowledge from different areas that can be used to analyze real spatial data problems and to connect geostatistics with geographic information systems (GIS). Concurrently scheduled with course C173. S/U or letter grading.

C283. Statistical Models in Finance. (4) Lecture, three hours. Recommended prerequisite: course 100B or 110B. Designed for graduate students. Statistical techniques in investment theory using real market data. Portfolio management, risk diversification, efficient frontier, single index model, capital asset pricing model (CAPM), beta of a stock, European and American options (Black/Scholes model, binomial model). Concurrently scheduled with course C183. S/U or letter grading.

285. Seminar: Computing for Statistics. (2 to 4) Seminar, one to three hours. Topics in various statistical areas by means of lectures and informal conferences with staff members. S/U grading.

M286. Seminar: Statistical Problem Solving for Population Biology. (2) (Same as Ecology and Evolutionary Biology M286.) Seminar, two hours. Designed for graduate students. Statistical solutions to complex data analysis and/or experimental design problems encountered by biology graduate students in their own research. S/U or letter grading.

287. Seminar: Gene Expression and Systems Biology. (2) Seminar, two hours. Designed for graduate students (open to undergraduate students with consent of instructor). With high-throughput technologies such as genomic sequencing, microarray gene expressions, Chromatin-ImmunoPrecipitation DNA chip (ChIP-chip), and mass spectrometry (MS/MS) proteomics, scientists are collecting genetic, genomic, and pathway data at rates far beyond imagination one decade ago. Such gigantic volumes of data produced cannot be analyzed and understood without highly sophisticated computational methods guided by mathematical and statistical principles. Cutting-edge genomics research from statistical data analytic point of view. S/U or letter grading.

290. Current Literature in Statistics. (2) Seminar, one hour. Topics in various statistical areas by means of lectures and informal conferences with staff members. S/U grading.

291SL. Service Learning for Graduate Statistical Consulting. (4) (Formerly numbered 291.) Research group meeting, two hours; fieldwork, two hours. Exposure to realistic statistical and scientific problems that appear in typical interactions between statisticians and researchers, with lectures centered on case studies presented by faculty members and invited speakers from business and academic fields. Applied regression analysis and design of experiments, together with basic statistical programs. Presentations and written reports required. S/U or letter grading.

292. Graduate Student Statistical Packages Seminar. (1 to 2) Seminar, two hours. Introduction to various statistical packages. How to handle data in different packages (input, output, data management, treatment of missing data), general syntax of different programming languages, and good practice for writing own statistical functions. S/U grading.

293. Graduate Student Research Seminar. (2) Seminar, two hours. Designed for graduate statistics students. Participating seminar in which various aspects of performing research are discussed by variety of faculty members. Exposure to current research topics with statistical implications to help students select possible thesis or dissertation topics. May not be applied toward degree course requirements. S/U grading.

C294. Scientific Writing. (2) Seminar, one hour. Development of oral and written presentations of statistical data. Objectives and techniques of scientific writing and practice with different forms of professional writing. Participation in oral presentations of student work. Concurrently scheduled with course C184. S/U or letter grading.

296. Participating Seminar: Statistics. (1 to 2) Seminar and discussion by staff and students. S/U grading.

297SL. Service Learning and Community Learning for Statistics. (2 to 4) Seminar, three hours; fieldwork, 10 hours. To further knowledge by applying what students have learned in class to an actual service work setting under guidance of faculty mentor. Interaction with nonprofit organizations can be either on location or over the Internet. May be used for M.S. thesis; research paper/project required. S/U or letter grading.

370. Teaching of Statistics. (4) Lecture, four hours. Exhaustive review of literature in teaching of statistics followed by analysis of what is missing in this area. Discussion of prevalent education, cognitive psychology, and evaluation theories and strategies that help to improve teaching of statistics. Letter grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance

and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495A. Teaching College Statistics. (2) Seminar, two hours; intensive training at beginning of Fall Quarter. Required of all potential departmental teaching assistants and new Ph.D. students. Practical and theoretical issues in teaching of statistics. S/U grading.

495B. Teaching College Statistics. (2) Seminar, two hours. Weekly discussion and intensive training for all first-year teaching assistants that addresses practical and theoretical issues in using technology to teach statistics, including use of statistical software as education tool. S/U grading.

495C. Evaluation of Teaching Assistants. (2) Seminar, two hours. Overview of new trends and directions in teaching of statistics. Observation of teaching assistants twice by instructor to give them chance to observe and analyze their own strengths and weaknesses and think about how they can improve their teaching. S/U grading.

596. Directed Individual Study or Research. (2 to 8) Tutorial, to be arranged. Supervised individual reading and study on project approved by a faculty member. May be repeated for credit. Letter grading.

598. M.S. Thesis Research. (2 to 12) Tutorial, to be arranged. Designed for second-year statistics M.S. students. Study and research for M.S. thesis. May be repeated for credit. S/U grading.

599. Ph.D. Dissertation Research. (2 to 12) Tutorial, to be arranged. Preparation: advancement to Ph.D. candidacy. Study and research for Ph.D. dissertation. May be repeated for credit. S/U grading.

STUDY OF RELIGION

See Religion, Study of

SURGERY

David Geffen School of Medicine

UCLA
72-131 Center for the Health Sciences
Box 951749
Los Angeles, CA 90095-1749
(310) 206-2567
fax: (310) 267-0369
<http://www.surgery.medsch.ucla.edu>

Chairs

Ronald W. Busuttill, M.D., Ph.D. (*Dumont-UCLA Professor of Transplantation Surgery and William P. Longmire, Jr., Professor of Surgery*), Executive Chair

Richard J. Shemin, M.D. (*Robert and Kelly Day Professor of Cardiothoracic Surgery*), Vice Chair, Clinical Affairs

Jonathan R. Hiatt, M.D. (*Robert and Kelly Day Professor of General Surgery*), Vice Chair, Surgical Education

Peter F. Lawrence, M.D. (*Lillian and Alvin L. Bergman Professor of Vascular Research*), Vice Chair, Clinical Practice and Strategic Planning

Jerzy W. Kupiec-Weglinski, M.D., Ph.D. (*Joan S. and Ralph N. Goldwyn Professor of Immunobiology and Transplantation*), Vice Chair, Basic Research

Clifford Y. Ko, M.D., M.S.H.S. (*Robert and Kelly Day Professor of Surgical Outcomes*), Vice Chair, Clinical Research

Matthias G. Stelzner, M.D., Vice Chair, VA Greater Los Angeles Healthcare System

Bruce E. Stabile, M.D., Vice Chair, Harbor-UCLA

Jesse E. Thompson, Jr., M.D., Vice Chair, Olive View-UCLA

Bruce L. Gewertz, M.D., Chief of Surgery, Cedars-Sinai

Nand S. Datta, M.D., *Chief of Surgery, Drew University*

Scope and Objectives

The Department of Surgery instructs medical students during all four years of medical school. Students are expected to obtain broad knowledge of diseases treated by surgical means and to understand the pathophysiology of these conditions, the therapy that may be applied, and the anticipated results of treatment. They are also encouraged to learn about the effects of surgical illness on the patient and the patient's family and environment.

Third-year students participate in one 12-week core clerkship in clinical surgery and are assigned to rotations at a combination of Reagan UCLA, Cedars-Sinai, Harbor-UCLA, West Los Angeles VA, Olive View-UCLA, and Santa Monica UCLA Medical Centers. Each facility has a special orientation depending on the patient population and the individual staff. During the fourth year students may elect to take additional clinical rotations with increasing responsibilities. Additional in-depth elective courses are offered in collaboration with other departments.

For further details on the Department of Surgery and a listing of the courses offered, see <http://www.surgery.medsch.ucla.edu>.

Surgery

Upper Division Course

199. Directed Research in Surgery. (2 to 8) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

THEATER

School of Theater, Film, and Television

UCLA
103 East Melnitz Building
Box 951622
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<http://www.tft.ucla.edu/programs/tht/>

Michael J. Hackett, Ph.D., *Chair*

Professors

Alan M. Armstrong, M.F.A.
Sue-Ellen Case, Ph.D.
Gilbert Cates, M.A.
Susan L. Foster, Ph.D.
Gary A. Gardner, Ph.D.
Hanay L. Geiogamah, B.F.A.
Michael J. Hackett, Ph.D.
Patricia M. Harter, Ph.D.
Neil P. Jampolis, B.F.A.
Deborah Nadoolman Landis, Ph.D. (*David C. Copley Professor for Study of Costume Design*)
Michael S. McLain, Ph.D.
Richard S. Rose, M.F.A.
Mel Shapiro, M.F.A.
Carol J. Sorgenfrei, Ph.D.
José Luis Valenzuela, B.A.
Edit E. Villarreal, M.F.A.

William D. Ward, M.F.A.

Professors Emeriti

John R. Cauble, M.A.
Donald B. Crabs, M.A.
Henry Goodman, Ph.D.
Robert H. Hethmon, Ph.D.
John H. Jones, M.A.
Anna Krajewska-Wieczorek, Ph.D.
Joanne T. McMaster, M.F.A.
Sylvia E. Moss, B.A.
William T. Wheatley, Ph.D.
Margaret L. Wilbur, M.F.A.

Associate Professor

Joseph M. Olivieri, M.F.A.

Assistant Professors

Myung Hee A. Cho, M.F.A.
Shelley I. Salamensky, Ph.D.

Lecturers

Jonathan A. Burke
Paul E. Girard
Daniel A. Ionazzi, Jr., M.B.A.
Thomas J. Orth

Adjunct Professors

Lynn M. Dally, M.A.
F. Nicholas Gunn

Adjunct Associate Professor

Jean-Louis Rodrigue

Adjunct Assistant Professors

Raquel M. Barreto
Dan T. Belzer, M.F.A.
Adele Cabot, M.F.A.
Scott A. Conte, M.F.A.
Linda Kerns
Jeremy L. Mann
Ed J. Monaghan, M.F.A.
Judith E. Moreland, M.F.A.
Amen Santo
April Shawhan
John Simmons, M.F.A.
Bruce Vaughn
Paul M. Wagar

Visiting Associate Professors

Ellen Geer
Gordon Hunt
Salome Jens
Amy Lieberman

Visiting Assistant Professors

Michael Donovan
Mary Jo DuPrey
Jacey Erwin
Marilyn E. Fox
Evelyn Halus
Peggy Hickey
Brian E. Kite
Jessica Kubzansky
Charles McNulty
Benedicte Schoyen
Peter J. Shushtari, M.F.A.
William Szobody
Jonathan Wang

Scope and Objectives

UCLA's theater program offers comprehensive training for the profession, as well as serious study of theater's long history and rich literature. Drawing on this vibrant heritage, the curriculum promotes an awareness of theater as a global phenomenon embodying the contributions of diverse cultures and explores theater as a forum for reflecting the human experience as revealed through the dynamics of theater production. With this in mind, students engage in the presentation of dramatic work in a community where creativity and critical thought combine in

the exploration of the artistic and intellectual challenges inherent in the making of theater.

Manifesting talent and promise as well as representing a wide range of backgrounds and interests, prospective students are selected by the faculty through auditions and interviews in cities throughout the U.S.

At the undergraduate level, students receive education in acting, design, directing, history and criticism, musical theater, and playwriting, all within the rigorous liberal arts framework of the B.A. degree. The department also offers a Theater minor.

At the graduate level, the M.A. in Theater offers a flexible curriculum of graduate courses that provides a focus in theater scholarship or theater practice. For exceptional students who wish to pursue graduate education, the M.A. offers a foundation in theater history, criticism, or performance studies, or an area of theater practice such as dramatic writing, directing, design, or theater education outreach. Students in the M.F.A. program develop as artists and are given preprofessional training in the skills of theater, while Ph.D. students engage in critical investigations of the art form. In conjunction with their theater studies, students also have the opportunity to pursue elective courses in the area of film and television.

For current or specific information about the programs and faculty members, see <http://www.tft.ucla.edu/programs/tht>.

Undergraduate Study

The Theater major is a designated capstone major. Theater capstone courses represent the highest level of student scholarship/artistic achievement in each of the undergraduate areas. They are the culmination of all the broad educational courses and core foundational courses that have come before. Group participation in the creation and production of student projects is core to the curriculum. Capstone courses vary by area and require individual projects or performances, a major artistic contribution to a theater production, or an individual course of study resulting in a research paper. Through their capstone work, students demonstrate general knowledge and specialized skills, successfully relate their experience in a studio, production, or fieldwork setting, communicate effectively orally and in writing, and engage with a community of artists and scholars presenting theatrical work.

Theater B.A.

Capstone Major

The Theater B.A. provides a liberal education by combining critical study of theater with experiential practice in one or more of its component parts. Students explore acting, design, directing, playwriting, and production to build a foundation for future creative work. Specialized and advanced training is available to prepare students for a variety of careers, further training, or graduate study. At the upper division level, students choose from an array of ad-

vanced elective courses in acting, design and production, directing, musical theater, playwriting, theater history, criticism, dramatic literature, and performance.

Admission

All applicants must meet the admission standards of UCLA and the departmental screening process. Applications are accepted only in November for admission to the following Fall Quarter. There are no mid-year admissions. Students must submit required supplemental materials directly to the Theater Department. All applicants must also sign up for an audition and/or interview at <http://www.tft.ucla.edu/admissions/>. There is a \$50 fee for all auditions/interviews. Applicants may submit materials for consideration in one or more of the following areas: acting, design and production, directing, history and criticism, musical theater, and playwriting.

Preparation for the Major

Required: Theater 11, 12, 13, 14A, 14B, 14C, 50 (must be taken for 4 units total).

The Major

Required: A total of 61 upper division units, including Theater 101A, 101B, 101C, 150 (must be taken for 4 units total), and 38 upper division elective units selected from courses 101A through 199 within the elective sequences listed below.

Through some of these required courses, students are responsible for completing specific production assignments related to production activity of the theater curriculum.

The acting electives include fundamental and advanced courses in all aspects of performance training that prepare students for careers in performance. There is some performance in projects, but emphasis is on class and studio work. Upper division advanced courses explore verse, scene study, comedy, cabaret, movement, and combat. One capstone senior project (Theater 180) is required.

The design and production electives introduce design principles and investigate the design of scenery, lighting, costumes, and sound for theater, film, and television in lower division courses. Four design and production areas of study are available at the upper division level—scenic design, costume design, lighting design, and sound design. Students select from an array of design skills courses to develop proficiency in essential areas of rendering, drafting, painting, computer-aided design, and technology. Courses in art, history, and philosophy build an understanding of the social history of visual ideas. A sequence of courses in each area of study examines design principles and practice specific to each field. One capstone senior project (Theater 180) is required.

The directing electives explore the basic theories of play direction, as well as text analysis and craft fundamentals. Advanced courses emphasize psychological aspects of director-actor communication and development of specific directorial and production styles. One capstone directing course (Theater 163C) is required.

The history and criticism of theater and drama electives include the study of fundamental cultural, social, ethical, and political issues in the context of artistic expression enriched by historical perspective. The curriculum promotes an awareness of the theater as a global phenomenon embodying the contributions of diverse cultures and explores the verbal and visual elements of its language as revealed through the dynamics of theater production. One capstone senior project (Theater 180) is required.

The Ray Bolger Musical Theater Program electives train selected students in acting, singing, and dance for the musical theater and provide knowledge of musical theater history. Additional courses provide hands-on training with professional artists and a range of performing experiences from workshops to full productions. One capstone senior project (Theater 180) is required.

The playwriting electives include specialized and advanced courses that prepare students to write one-act and full-length plays, books and lyrics for music theater, and scripts for the one-person show. One capstone intermediate playwriting course (Theater 131C) is required.

Due to curriculum changes, students in the Theater major are no longer allowed to change their major to Film and Television at the end of their sophomore year.

Theater Minor

The Theater minor is designed for students who wish to augment their major program of study with a series of courses that promote the study of theater as a global phenomenon for reflecting the human experience. The minor consists of a selection of lower division courses that expose students to the fundamentals of theatrical production, as well as acting, writing, and directing. Upper division courses offer more focused study of those areas, as well as theater design, history, education, and theater of non-Western cultures.

To enter the minor students must be in good academic standing (minimum 2.0 grade-point average), have completed at least one theater course with a grade of C or better, and file a petition at the Student Services Office, 103 East Melnitz Building, (310) 206-8441. All degree requirements, including the specific requirements for this minor, must be fulfilled within the unit maximum set forth by each student's school or College.

Required Lower Division Courses (6 to 10 units): Theater 10 and one course from 15, 20, 28A, 28B, 28C, 30.

Required Upper Division Courses (22 to 27 units): Theater 150, one course from 102A through 102E, M103A through M103G, 105, 106, 107, 108, M109, 110, 111A, 111B, 111C, or 113, and four courses from 118A, 118D, 121, 123, 130A, 138, 139, C146A, C146B, C146C, 149, 195.

A minimum of 20 units applied toward the minor requirements must be in addition to units ap-

plied toward major or minor requirements in another department or program, and at least 16 units applied toward the minor must be taken in residence at UCLA. Transfer credit for any of the above is subject to department approval.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Theater offers Master of Arts (M.A.) and Master of Fine Arts (M.F.A.) degrees in Theater and Candidate in Philosophy (C.Phil.) and Doctor of Philosophy (Ph.D.) degrees in Theater and Performance Studies.

Theater

Lower Division Courses

1A-1B-1C. Introduction to Dance for Music Theater. (1-1-1) Studio, four hours. Designed for Theater majors. Introduction to basic music theater dance technique. Each course may be repeated once for credit. Letter grading.

2. Theater in Performance: International Theater Festival. (5) Lecture, three hours; discussion, two hours. Exploration of theater in performance as revealed in productions and guest artists of UCLA International Theater Festival, with emphasis on collaborative role of theater artists and active role of audience. Students view selected productions, go back stage to discover how they are realized, and meet creative team. Letter grading.

4. Israel and Palestine in Literature and Media. (5) Lecture, three hours; discussion, two hours. Readings in English. Exploration of Israel and Palestine through artistic, cultural, and political modes of analysis. Examination of selected works of literature, theater, and film dramatic by Israeli, Palestinian, and Western artists, looking beyond facile cultural clichés to deeper insights. Letter grading.

10. Introduction to Theater. (5) Lecture, three hours; discussion, one hour. Exploration of theater in production, with emphasis on collaborative role of theater artists and active role of audience. Understanding of and access to live theatrical event and enhanced appreciation of value of theater to society; development of critical skills through consideration of representative examples of theatrical production from Europe, America, Asia, and Africa. Letter grading.

11. Approaches to Interpretation of Theater and Performance. (5) Lecture, four hours. Introduction to basic methods of interpretation in theater and performance throughout world. Topics illustrated by faculty members and guest speakers, visits to off-campus theaters, and reading from contemporary plays. Letter grading.

12. Introduction to Performance. (4) Lecture, two hours; studio, four hours. Investigation of phenomenon of performance and role of the performer in the theatrical event, including interpretation of drama through performance. Examination of various forms of

theatrical performance and styles of expression, and development of acting, voice, and movement skills. Letter grading.

13. Play Reading and Analysis. (5) Lecture, three hours. Provides base for subsequent study in theater. Development of techniques of play reading and habits of scholarship useful to further study in each of theater's subdisciplines, including acting, directing, design, playwriting, and critical study. Letter grading.

14A-14B-14C. Introduction to Design. (5-5-5) Lecture, three hours; studio, six hours. Exploration of visual interpretation of drama. Study of styles and techniques of design, collaborative role of designer, principles of design for scenery, lighting, costumes, and sound. Both technical and aesthetic groundwork for further study. Letter grading.

15. Introduction to Directing. (4) Lecture, two hours; studio, four hours. Requisite: course 11. Investigation of role of the director in theatrical production and theories of play direction, with emphasis on analysis and interpretation of dramatic work and its realization in production. Letter grading.

20. Acting Fundamentals. (4) Studio, four hours. Introduction to interpretation of drama through art of actor. Development of individual insights, skills, and disciplines in presentation of dramatic material to audiences. P/NP or letter grading.

21. Acting for Camera. (2 to 4) Lecture, three hours. Development and practice in acting techniques. Preparation and taping of scenes for analysis. May be repeated twice for credit. Letter grading.

23. Musical Literacy for Singing Actors I. (2) Studio, three to four hours. Introduction to reading and understanding musical notation, musical terminology, and basic to complex rhythm-reading and sight-singing in C major. Letter grading.

24A-24B-24C. Voice and Speech I. (1-1-1) Studio, three to four hours. Development of voice and speech techniques for stage. Letter grading.

25A-25B-25C. Movement and Combat I. (1-1-1) Studio, three to four hours. Physical awareness for actors, concentrating on warming up body, relaxation, control, stunts, gymnastics, martial arts, and use of weapons. Letter grading.

26. Alexander Techniques. (2) Studio, three hours. Study and practice in Alexander techniques as method of developing balance, poise, and coordination of body and mind. Exploration of use of rhythm to expand movement potential of actors and relevant use of visual arts and animal studies to character development and to expansion of movement potential. P/NP or letter grading.

27. From Vaudeville to Standup Comedy. (2) Studio, three hours. Exploration of many aspects of comedy using American vaudeville traditions, acts, and performers as historical base to experience importance of rhythm, timing, delivery, speech, and body language in all styles of comedy, to find value of improvisation/imagination as well as innovative writing skills in all comic forms, to discover how comedy draws from so many art forms, including music/songs, dance, storytelling, clowning, magic, design, and tumbling/stunts, and to build overall confidence/ease in comic performance skills. P/NP or letter grading.

28A-28B-28C. Acting, Voice, and Movement Workshops I. (2-2-2) Studio, three to six hours. Study of beginning acting technique, scene study, and development of voice and movement skills. May be repeated for a maximum of 12 units. Letter grading.

28D-28E-28F. Acting, Voice, and Movement Workshops I. (2-2-2) Studio, six hours. Study of beginning acting technique, scene study, and development of voice and movement skills. May be repeated for a maximum of 12 units. Letter grading.

30. Dramatic Writing. (1 to 4) Studio, three hours. Exploration and development of creative writing skills for one or more of various forms of entertainment media. May be taken for maximum of 8 units. Letter grading.

34A-34B-34C. Dance for Musical Theater I. (1-1-1) Studio, five hours. Development of dance and movement techniques for musical theater. Letter grading.

35A-35B-35C. Singing for Musical Theater I. (1-1-1) Studio, four to five hours. Exploration of musical literacy and development of singing techniques for musical theater. Basic voice training to explore how voice works, learn to maintain appropriate and consistent voice, and learn to preserve voice health. How to build stamina and range. Letter grading.

50. Theater Production. (1 to 2) Laboratory, three to six hours. Laboratory experience in various aspects of theater production, including stage management or member of production crew. May be repeated for a maximum of 8 units. Letter grading.

72. Production Practice in Theater, Film, Video, and Digital Media. (1 to 8) Studio, three hours. Exploration and laboratory experience in one or more of various aspects of production and postproduction practice for entertainment media, including theater, film, video, and digital media. May be taken for a maximum of 8 units. Letter grading.

Upper Division Courses

101A. Making Tradition. (5) Lecture, four hours; discussion, one hour. Examination of traditional performance traditions in terms of how they were produced, including training techniques, archive practices, and forms of history. Examples may include classical Greek tragedy, Noh and Kyogen, Za ju and Chuanqi, Quem Queritis/English medieval festival plays, Sanskrit drama, Yoruba/Egungun, Yaqui deer dance, depending on faculty and resources available. Letter grading.

101B. Reconstructing Theatrical Past. (5) Lecture, three hours; discussion, one hour. Reconstructing theater is understood in several ways: reconstruction of performance spaces such as New Globe and of specific productions and traditions such as neoclassicism that seek to reinstate classical traditions. Letter grading.

101C. Deconstructing Theater. (5) Lecture, three hours; discussion, one hour. Exploration of deconstructive practices such as fragmentation, abstraction, and absurdism, with focus on theatrical movements, directorial adaptations, cultural translations, and new forms. Letter grading.

102A. Theater of Japan. (5) Lecture, three hours. Exploration of major theater traditions of Japan from emergence of earliest theatrical activity to the present, including investigation of Noh, Bunraku, and Kabuki performance traditions. Letter grading.

102B. Theater of Southeast Asia. (5) Lecture, three hours. Examination of representative theatrical genre from various geographical areas in Southeast Asia to illustrate importance and contribution that theater plays in society. Letter grading.

102C. Cross-Cultural Currents in Theater. (5) Lecture, three hours. Exploration of interculturalism in theater, with focus on 20th-century alternatives to naturalism. Analysis of historical materials and dramatic texts to investigate cultural, aesthetic, ethical, and social implications of borrowing from other cultures. Letter grading.

102E. Theater of Non-European World. (5) Lecture, three hours; discussion, one hour. Survey of theater forms of non-European world in which primary attention is concentrated on examination and analysis of traditional dance-drama and puppet theaters of East Asia, Southeast Asia, South Asia, Middle East, and Africa. Analogous forms from European theater included for comparative purposes. P/NP or letter grading.

M103A. African American Theater History: Slavery to Mid-1800s. (4) (Same as Afro-American Studies M103A.) Lecture, three hours. Designed for juniors/seniors. Exploration of extant materials on history and literature of theater as developed and performed by African American artists in America from slavery to mid-1800s. Letter grading.

M103B. African American Theater History: Minstrel Stage to Rise of American Musical. (4) (Same as Afro-American Studies M103B.) Lecture, three hours. Designed for juniors/seniors. Exploration of extant materials on history and literature of theater as developed and performed by African American artists in America from minstrel stage to rise of American musical. Letter grading.

M103C. Origins and Evolution of Chicano Theater. (5) (Same as Chicana and Chicano Studies M103C.) Lecture, three hours. Designed for juniors/seniors. Exploration of development of Chicano theater from its beginning in legends and rituals of ancient Mexico to work of Luis Valdez (late 1960s). P/NP or letter grading.

M103D. Contemporary Chicano Theater: Beginning of Chicano Theater Movement. (5) (Same as Chicana and Chicano Studies M103D.) Lecture, three hours. Analysis and discussion of historical and political events from 1965 to 1980, as well as theatrical traditions that led to emergence of Chicano theater. Letter grading.

M103E. African American Theater History: Depression to Present. (4) (Same as Afro-American Studies M103E.) Lecture, three hours. Designed for juniors/seniors. Exploration of extant materials on history and literature of theater as developed and performed by African American artists in America from Depression to present. Letter grading.

103F. Native American Theater. (5) Lecture, three hours. Study of American Indian theater as evolving art form. P/NP or letter grading.

M103G. Contemporary Chicano Theater: Chicano Theater since 1980. (5) (Same as Chicana and Chicano Studies M103G.) Lecture, three hours. Requisite: course M103D. Analysis and discussion of Chicano theater since 1980, including discussion of Chicana playwrights, magic realism, Chicano comedy, and Chicano performance art. Letter grading.

104A-104B-104C. History of American Theater. (5-5-5) Lecture, three hours. Study of history of influence of different cultures, traditions, and technologies on development of theater as social institution in America. Letter grading. **104A.** Revolutionary War to Civil War; **104B.** Civil War to WWI; **104C.** WWI to Present.

105. Main Currents in Theater. (5) Lecture, three hours. Critical examination of leading theories of theater from 1887 to the present. Study and discussion of modern styles of production. P/NP or letter grading.

106. History of American Theater and Drama. (5) Lecture, three hours. Survey of key works of American dramatic literature and landmarks of American theater history. Letter grading.

107. Drama of Diversity. (5) Lecture, three hours. Investigation of diversity in American society as manifested in dramatic works and theatrical presentations. Letter grading.

108. Undergraduate Seminar: History and Criticism. (5) Seminar, four hours. Limited to 15 students. Selected topics in history and criticism of theater and performance. Study of how experimental theaters originate, how they imagine their form of performance, their audience, and their goals. Concentration on theaters that regarded themselves, in some way, as experimental. Examples primarily from theaters within the U.S. from the 1960s to the present, although examples from other countries, specifically Poland, also considered. Letter grading.

M109. Art and Performance: Interdisciplinary Approach to Collections of Getty Center. (4) (Same as Honors Collegium M120.) Lecture, four hours; discussion, one hour. Drawing from objects in five major collections at Getty Museum, focus on five parallel historical periods in which political, social, and aesthetic philosophy of the age is examined in musical and dramatic performance. Letter grading.

110. History of American Musical Theater. (5) Lecture, three hours. Survey of history of American musical: its composers, writers, and performers from musical's emergence in immigrant cultures to Broadway and Off-Broadway. With its roots in British music halls and comic opera, Viennese operetta and African American jazz, American musical theater emerged as vivid and popular art form with its own culture and identity. Letter grading.

111A-111B-111C. Selected Topics in European Theater. (5-5-5) Lecture, three hours. Investigation in depth of selected areas of study in traditions of European performance to be arranged by historical period, nation of tradition, genre, or other categories. May be repeated twice for credit. P/NP or letter grading.

M112. Interpreting Performance: Examination of Social, Historical, and Cultural Models for Performing Arts. (5) (Same as Honors Collegium M154.) Lecture, two hours; discussion, two hours. Examination of nature of performance in theory and practice and of social, historical, and cultural contexts in which performance traditions have evolved. Attendance at approximately five designated performances/events required. P/NP or letter grading.

113. Special Topics in Critical Studies. (5) Lecture, three or four hours. Consult *Schedule of Classes* for author, period, genre, or subject to be studied in specific term. May be repeated for credit. P/NP or letter grading.

115A-115B-115C. Acting I. (4-4-4) Studio, six hours. Study of beginning acting technique: improvisation, games, and sense memory with examination of action and objective exercises and outline of Stanislavsky system. Letter grading.

116A-116B-116C. Acting II. (4-4-4) Studio, six hours. Development of acting skills through scene study, use of self, and personalization. Examination of characterization exercises and their application to contemporary American scenes. Letter grading.

118A. Creative Dramatics. (4) Lecture/laboratory. Studies of principles and procedures of improvisational approach to drama as done with children from nursery school to junior high.

118B. Advanced Creative Dramatics. (2 to 4) Lecture, four hours; other, to be arranged. Practical application of creative drama process. Exploration of interrelationships of the arts to traditional disciplines of learning. May be repeated once for credit.

118C. Interactive Theater. (4) Laboratory. Active, problem-solving process of theater exercises and games designed to examine racial stereotypes, sexual harassment, gender discrimination, and other issue that divide members of the campus community, as well as issues which divide the campus from the Los Angeles community. Selected to increase social and political awareness of problems and ideas fundamental to intellectual development, exercises and games nurture skills and attitudes useful in facilitating discussions between actors and audience participants. Use of techniques of sensory awareness, movement, pantomime, improvisation, and characterization. Letter grading.

118D. ArtsBridge Teaching Practicum. (4) Lecture, four hours. Requisites: courses 118A, 118B. Development of K-12 teaching materials to integrate theater with specific core curricula. Collaboration with classroom teacher to identify core subject to be taught. Language arts, science, history, mathematics, and social sciences are possible curricular areas. Development of evaluation tools to measure effectiveness of incorporating theater materials into curriculum. Weekly meetings to discuss teaching strategies and prepare written lesson plans that incorporate California Teaching Content Standards, objectives, motivation, detailed implementation of lesson plan, and ideas for assessment. Classroom work culminates in thoroughly documented final project evaluated by ArtsBridge student, classroom teacher, and UCLA faculty members. P/NP or letter grading.

119A. Theater for the Child Audience: Theory and Criticism. (4) Lecture/laboratory. Principles of production and performance for the child audience.

119B. Theater for the Child Audience: Performance. (4) Lecture, two hours; laboratory, four hours. Preparation: audition prior to first class meeting. Designed to provide opportunity for students to work together as an ensemble, creating through improvisation a theater presentation for a young audience. Emphasis on testing theoretical concepts through ensemble work, rehearsal, pretesting, and evaluation of an original production for possible presentation outside the classroom.

120A-120B-120C. Acting and Performance in Film. (5-5-5) (Formerly numbered 120A-120B.) Lecture, six hours. Exploration of acting and performance in film. Through screenings of performance-driven films, class discussion, and acting exercises, examination of methods, styles, and performances of some of world's most highly regarded actors and their work. Letter grading.

121. Acting Workshop. (2) Laboratory, to be arranged. Requisite: course 20. Courses 160, 163A, 163B, and 163C may be taken concurrently. Workshop which provides students with opportunity to rehearse, perform, and criticize scenes. May be repeated once for credit.

122. Makeup for the Stage. (2) Art of makeup and its relation to the production as a whole. History, aesthetics, materials, and procedures of makeup.

123. Intermediate Acting for the Stage. (4) Lecture/laboratory. Requisite: course 20. Study and practice of art of acting through perfecting of techniques and application of those techniques to acting problems.

124A-124B-124C. Voice and Speech II. (1-1-1) Studio, three to four hours. Development of voice and speech techniques for stage. Letter grading.

124D-124E-124F. Voice and Speech III. (1-1-1) Studio, three to four hours. Development of voice and speech techniques for stage. Letter grading.

125A-125B-125C. Movement and Combat II. (1-1-1) Studio, three to four hours. Physical awareness for actors, concentrating on warming up body, relaxation, control, stunts, gymnastics, martial arts, and use of weapons. Letter grading.

125D-125E-125F. Movement and Combat III. (1-1-1) Studio, three to four hours. Physical awareness for actors, concentrating on warming up body, relaxation, control, stunts, gymnastics, martial arts, and use of weapons. Letter grading.

126A-126B-126C. Acting III. (4-4-4) Studio, six hours. Study of characterization, including introduction to Shakespeare. Approach to verse, scansion, use of emblems in classic texts. Personalization within heightened reality. Letter grading.

127A-127B-127C. Advanced Acting. (2-2-2) Studio, six hours. Requisites: courses 126A, 126B, 126C. Comedy workshop, stand-up comedy, performance art pieces. Audition and cold reading workshop. Solving individual acting projects. Letter grading.

128A-128B-128C. Acting, Voice, and Movement Workshops II. (2-2-2) Studio, four to six hours. Study of advanced acting technique, scene study, and development of voice and movement skills. May be repeated for a maximum of 12 units. Letter grading.

128D-128E-128F. Acting, Voice, and Movement Workshops II. (2-2-2) Studio, six hours. Study of advanced acting technique, scene study, and development of voice and movement skills. May be repeated for a maximum of 12 units. Letter grading.

CM129. Contemporary Topics in Theater, Film, and Television. (2) (Same as Film and Television CM129.) Lecture, two hours; screenings, two hours. Limited to junior/senior and graduate theater/film and television students. Examination of creative process in theater, film, and television, with consideration of writing, direction, production, and performance. Overview of individual contributions in the collaborative effort; examination of distinctiveness and interrelations among these arts. Individual units include participation of leading members of theater, film, and television professions. May be repeated twice for credit. Concurrently scheduled with course CM229.

130A. Fundamentals of Playwriting I. (5) Lecture, three hours; discussion, one hour. Study and analysis of dramatic structure, characterization, and narrative leading to guided completion and critique of student-written one-act play. Letter grading.

130B. Fundamentals of Playwriting II. (4) Lecture, three hours plus conference. Requisite: course 130A. Study in original material for the theater, its preparation and development. Designed to give further insight into critical and creating aspects of short and full-length plays and guidance in completion of one-act and full-length plays. May be repeated twice for credit.

130C. Writing for American Musical Theater. (4) Lecture/laboratory, three hours. Study of practice and techniques used in writing a libretto for musical theater: opening numbers, romance, subplots, and comedy. May be repeated once for credit.

131A-131B-131C. Intermediate Playwriting. (5-5-5) Lecture, three hours. Letter grading. **131A.** Play Strategies and Styles. Requisite: course 30 or 130A. Exploration of play forms and writing of one-act play. **131B.** One-Act Play. Requisite: course 131A. Preparation and writing of one-act play and/or outlining of full-length play. May be repeated twice for credit with consent of instructor. **131C.** Full-Length Play. Requisites: courses 131A, 131B. Preparation and writing of full-length play. May be repeated twice for credit with consent of instructor.

132. Manuscript Evaluation for Theater. (4) Lecture, three hours. Requisite: course 130A. Principles and practices in evaluation of manuscripts for theater. May be repeated once for credit. P/NP or letter grading.

C133A-C133B-C133C. Script Development Workshops. (4 to 8 each) Lecture, three hours; studio, four to 24 hours. Guided process of script development, with emphasis on communication, artistic growth, and professional process. Each course may be taken for a maximum of 8 units. Concurrently scheduled with courses C433A-C433B-C433C. Letter grading.

134A-134B-134C. Dance for Musical Theater II. (1-1-1) Studio, five hours. Designed for Theater majors. Development of dance and movement techniques for musical theater. Letter grading.

134D-134E-134F. Dance for Musical Theater III. (1-1-1) Studio, five hours. Designed for Theater majors. Development of dance and movement techniques for musical theater. Letter grading.

135A-135B-135C. Singing for Musical Theater II. (1-1-1) Studio, five hours. Designed for Theater majors. Exploration of vocal styles and development of singing techniques for musical theater. Letter grading.

135D-135E-135F. Singing for Musical Theater III. (1-1-1) Studio, five hours. Designed for Theater majors. Exploration of vocal styles and development of singing techniques for musical theater. Letter grading.

136. Advanced Acting for Stage. (4) Studio, four hours. Requisite: course 123. Study and practice of art of acting through progression to more advanced acting problems. May be repeated twice for credit. Consecutive enrollment with same instructor not permitted. Total units for courses 136, 137A, 137B, and 137C may not exceed 12 units. Letter grading.

137A-137B-137C. Continuum Study in Acting for the Stage. (4-4-4) Studio, six hours. Requisite: course 123. Technique of characterization and performance in advanced and complex acting styles. May be repeated once for credit.

138. Special Problems in Performance Techniques. (4) Lecture/laboratory. Study of complex problems in voice, movement, and acting. May be repeated twice for credit.

139. Play Reading and Analysis. (5) Lecture, three hours. Investigation of dramatic texts, with focus on play structure, plot, character, dialog, ideas, and various other elements essential to effective theatrical interpretation and realization. Letter grading.

C140A. Introduction to Programming for Entertainment Design. (4) Studio, three hours. Study and practice in object-based programming using MAX/MSP programming language. May be repeated once for credit. Concurrently scheduled with course C440A. Letter grading.

C140B. Advanced Programming for Entertainment Design. (4) Studio, three hours. Study and practice in object-based programming using MAX/MSP programming language to control sound and video. May be repeated once for credit. Concurrently scheduled with course C440B. Letter grading.

C140C. Advanced Projects in Programming for Entertainment Design. (4) Studio, three hours. Advanced projects using object-based programming to control sound and video. May be repeated once for credit. Concurrently scheduled with course C440C. Letter grading.

C144A-C144B-C144C. Advanced Sound Design. (4-4-4) Lecture, four hours; laboratory, four hours. Concurrently scheduled with courses C444A-C444B-C444C. Letter grading:

C144A. (4) Lecture, four hours; laboratory, four hours. Study of sound and acoustics as they relate to performance environments, techniques associated with recording, mixing, processing, automation, and reproduction of dialogue, effects, and music tracks for theater sound design. May be repeated once for credit. Letter grading.

C144B. (4) Lecture, four hours; laboratory, four hours. Advanced study and practice in preparation and recording of theater sound designs, with emphasis on analysis of script and score, conceptual development of the design, and multitrack recording techniques to realize the design. May be repeated once for credit. Letter grading.

C144C. (4) Lecture, four hours; laboratory, four hours. Study and practice in processing and mixing of live and recorded sound; mix-down of multitrack recordings; preparation of sound tracks and sound reinforcement in the theater. Study of creation of sound effects, control of MIDI data, and design techniques for music theater. May be repeated once for credit. Letter grading.

145. Costume Design for the Theater. (4) Lecture/laboratory. Design of costumes for theatrical presentations. Study of use of silhouette, fabrics, color, and decoration as related to theatrical characterizations. May be repeated once for credit.

C146A-C146B-C146C. Art and Process of Entertainment Design. (4-4-4 to 8) Lecture. Conceptualization, design, and prototyping of interactive theatrical events. Each course may be repeated once for credit. Concurrently scheduled with courses C446A-C446B-C446C. Letter grading:

C146A. (4) Lecture, three hours. Exploration of original forms of media-rich entertainment experience through lectures, presentations, and seminar participation. Students form collaborative teams to conceive and propose interactive entertainment events. May be repeated once for credit. Letter grading.

C146B. (4) Lecture, three hours. Prototype development; two to five proposals to be more completely defined and developed. Students form collaborative teams for further conceptual development of their project proposals. May be repeated once for credit. Letter grading.

C146C. (4 to 8) Lecture, three to six hours. Prototype development; conceptual refinement and technological realization of prototypes, which may entail creation of elaborate proposals containing storyboards, budgets, and models or may involve production of short "performances" demonstrating entertainment potential of concepts or prototypes. May be repeated once for credit. Letter grading.

147A. Drafting. (4) Development of visual communication skills through drafting. Exploration of drafting for scenic and lighting designs. May be repeated once for credit. Letter grading.

147B. Rendering. (4) Introductory course in basic skills necessary for drawing and rendering for scenic, costume, and lighting design for theater, film, and television. May be repeated once for credit. Letter grading.

148. Special Courses in Design and Technical Theater. (4) Lecture, three hours. Group study of selected subjects in design and technical theater. May be repeated twice for credit.

149. Introduction to Design. (5) Lecture, three hours. Exploration of interpretation of drama through design, including study of styles and techniques of design, collaborative role of designer, principles of design for scenery, lighting, costumes, and sound. Both technical and aesthetic groundwork for further study. Investigation of techniques for realization of designs in production. Letter grading.

150. Theater Production and Performance. (1 to 2) Laboratory, three to six hours. Laboratory experience in various aspects of theater production, including performance in project or production, stage management, member of crew, or assignment as designer or assistant on production. May be repeated for maximum of 8 units. Letter grading.

C151A. Scenic Design. (4) Lecture/studio, four hours. Requisites: courses 14A, 14B, 14C. Imagination as impetus for design, text analysis, metaphor, and conceptualization. Investigation of design research process, composition, and style leading to visual presentation of design. May be repeated once for credit. Concurrently scheduled with course C451A. Letter grading.

C151B. Scenic Design for Theater. (4) Lecture/studio, four hours. Requisites: courses 14A, 14B, 14C. Study of scenic design for proscenium, thrust, and arena configurations, multiset productions, and music theater. May be repeated once for credit. Concurrently scheduled with course C451B. Letter grading.

C151C. Production Design for Film, Television, and Video. (4) Lecture/studio, four hours. Study of role of art director, scenic design for single-camera and multicamera production, and set decoration. May be repeated once for credit. Concurrently scheduled with course C451C. Letter grading.

C152A. Lighting Design. (4) Lecture/studio, four hours. Requisites: courses 14A, 14B, 14C. Study of lighting, with emphasis on imagination, text analysis, metaphor, and conceptualization. Investigation of composition and control of light and color in relation to actor. May be repeated once for credit. Concurrently scheduled with course C452A. Letter grading.

C152B. Lighting Design for Theater. (4) Lecture/studio, four hours. Requisites: courses 14A, 14B, 14C. Study of lighting design for proscenium, thrust, and arena configurations, music theater, and concert lighting. May be repeated once for credit. Concurrently scheduled with course C452B. Letter grading.

C152C. Lighting Design for Television. (4) Lecture/studio. Study of current professional lighting design practices in television for single- and multiple-camera production. Concurrently scheduled with course C452C. Letter grading.

C153A. Costume Design. (4) Lecture/studio, four hours. Requisites: courses 14A, 14B, 14C. Imagination as impetus for design, text analysis, metaphor, and conceptualization. Investigation of design research process, composition, and style leading to visual presentation of design. May be repeated once for credit. Concurrently scheduled with course C453A. Letter grading.

C153B. Costume Design for Theater. (4) Lecture/studio, four hours. Requisites: courses 14A, 14B, 14C. Study of costume design for proscenium, thrust, and arena configurations, multiset productions, and music theater. May be repeated once for credit. Concurrently scheduled with course C453B. Letter grading.

C153C. Costume Design for Film and Television. (4) Lecture/studio, four hours. Requisites: courses 14A, 14B, 14C. Study of current professional costume design and wardrobe practices in film and television, including effect of differing media on design choices. May be repeated once for credit. Concurrently scheduled with course C453C. Letter grading.

C154A. Sound Design. (4) Lecture/studio, four hours. Requisites: courses 14A, 14B, 14C. Introduction to sound and audio in acoustic, audio, and digital domain. Study and practice of techniques for recording, editing, and creating soundscapes. May be repeated once for credit. Concurrently scheduled with course C454A. Letter grading.

C154B. Sound Design for Theater. (4) Lecture/studio, four hours. Requisites: courses 14A, 14B, 14C. Exploration of sound design for theater and techniques for mixing, reinforcement, and signal processing. Topics include use of delay, equalization, and microphone placement for theater sound reinforcement. Study of creation of sound effects, control of MIDI data,

and design techniques for musical theater. May be repeated once for credit. Concurrently scheduled with course C454B. Letter grading.

C154C. Sound for Film and Television. (4) Lecture/studio. Study of current professional sound recording, rerecording, mixing, and synchronization practices for film and television. Concurrently scheduled with course C454C. Letter grading.

C155A-C155H. Graphic Representation of Design. (2 each) Studio. Concurrently scheduled with courses C455A-C455H. Letter grading:

C155A. Perspective Drawing. (2) Studio, four hours. Requisite: course 147A or 147B. Introduction to use of pencil and pen to communicate scenic designs, including one- and two-point perspective, form light, shade, and textures. Letter grading.

C155B. Watercolor Rendering. (2) Studio, four hours. Requisite: course 147A or 147B. Study of watercolor techniques as they relate to interpretation of scenic designs, including painting of brick, wood, stone, fabrics, and other surfaces. Letter grading.

C155C. Marker Rendering. (2) Studio, four hours. Requisite: course 147A or 147B. Study and practice of marker rendering techniques as a means of communication for scenic and costume designers. Letter grading.

C155D. Model Making. (2) Studio, four hours. Requisite: course 147A or 147B. Study of the model for representation of scenic designs from initial working prototypes to finished color models. Use of wide variety of materials and techniques for execution of the model. Letter grading.

C155E. Life Drawing. (2) Studio, four hours. Requisite: course 147A or 147B. Study and practice in drawing of human form. Letter grading.

C155F. Costume Rendering. (2) Studio, four hours. Requisite: course 147A or 147B. Study of techniques for rendering theatrical costumes, with emphasis on figure, clothing, and fabrics. Letter grading.

C155G. Scene Painting Techniques. (2) Studio, four hours. Requisite: course 147A or 147B. Study of scenic painting techniques and materials and their realization of color design and elevations. May be repeated once for credit. Letter grading.

C155H. Selected Topics in Graphic Representation of Design. (2) Studio, six hours. Group study of selected subjects in techniques for interpretation of design for theater. May be repeated once for credit. Letter grading.

C156A. Introduction to Computer-Assisted Drafting. (4) Studio, four hours. Requisite: course 147A. Investigation of drawing and editing techniques, drawing floor plan sections, and elevation drawings using AutoCAD. Concurrently scheduled with course C456A. Letter grading.

C156B. Advanced Computer-Assisted Drafting. (4) Studio, four hours. Requisite: course 147A. Investigation of drafting techniques for scenic and lighting designs using AutoCAD. Concurrently scheduled with course C456B. Letter grading.

C156C. Computer-Assisted Rendering. (4) Studio, four hours. Investigation of three-dimensional lighting and scenic design previsualization: wire-frame perspective drawing and photo-realistic computer rendering techniques using three-dimensional studio. Concurrently scheduled with course C456C. Letter grading.

C156D. Introduction to Computer-Assisted Drafting. (4) Studio, four hours. Requisite: course 147A. Investigation of drawing and editing techniques, drawing floor plan sections, and elevation drawings using Vectorworks. Concurrently scheduled with course C456D. Letter grading.

C156E. Advanced Computer-Assisted Drafting. (4) Studio, four hours. Requisite: course 147A. Investigation of drafting techniques for scenic and lighting designs using Vectorworks. Concurrently scheduled with course C456E. Letter grading.

C156F. Introduction to Computer-Assisted Rendering. (4) Studio, four hours. Investigation of three-dimensional lighting and scenic design previsualization: wire-frame perspective drawing and photo-realistic

tic computer rendering techniques using Vectorworks. Concurrently scheduled with course C456F. Letter grading.

C157A-C157B-C157C. Costume Construction Techniques. (2-2-2) Studio, four hours. Study of theory and application of drafting, pattern making, fitting, and construction techniques for period costumes and undergarments to achieve authentic-appearing costume using contemporary methods. May be repeated once for credit. Concurrently scheduled with courses C457A-C457B-C457C. P/NP or letter grading. **C157A.** Requisites: courses 14A, 14B, 14C. Introduction to draping, pattern grading fitting, and slash and spread adaptation. **C157B.** Requisite: course C157A. Introduction to costume drafting, construction of period undergarments. **C157C.** Requisites: courses C157A, C157B. Draping, patterning, and fitting techniques for period garments.

C158A. Scenic Design Technology. (4) Lecture/studio. Requisites: courses 14A, 14B, 14C. Investigation of materials, systems, and techniques for realization of scenic designs for theater, film, and television. Study of advanced techniques and materials for construction, finishing, and rigging of scenery and properties. Concurrently scheduled with course C458A. Letter grading.

C158B. Lighting Design Technology. (4) Lecture/studio. Requisites: courses 14A, 14B, 14C. Investigation of materials, systems, and techniques for realization of lighting designs for theater, film, and television. Study of design, operation, and performance of lighting instruments, dimming equipment, and control systems, including automated fixtures, projection equipment, and computer systems for lighting. Concurrently scheduled with course C458B. Letter grading.

C158C. Sound Design Technology. (4) Lecture/studio. Requisites: courses 14A, 14B, 14C. Investigation of materials, systems, and techniques for realization of sound designs for theater, film, and television. Study of operation and performance of equipment for recording, mixing, and reproduction of theater sound. Concurrently scheduled with course C458C. Letter grading.

159. Design Portfolio Project. (4) Lecture/studio. Requisites: courses 14A, 14B, 14C. Preparation of complete designs and drawings for a production and assembly of a design portfolio and résumé. Projects prepared under guidance of a faculty adviser. Letter grading.

160. Fundamentals of Play Direction. (5) Lecture, two hours; laboratory, four hours. Required of Theater majors. Course 121 may be taken concurrently. Basic theories of play direction and their application through preparation of scenes under rehearsal conditions.

163A-163B-163C. Directing for the Stage. (4-4-4) Lecture/studio. Requisite: course 15. Letter grading:

163A. (4) Lecture/studio. Requisite: course 15. Intensive development of primary directing skills and process, including text analysis and exploration of craft fundamentals as a basis for director/actor communication and effective staging. Students direct scenes from plays under laboratory conditions. Letter grading.

163B. (4) Lecture/studio. Requisite: course 15. Further development of craft elements of directorial method, with additional emphasis on psychological aspects of director/actor communication. Students direct scenes under laboratory conditions in alternative stage configurations. Letter grading.

163C. (4) Lecture/studio. Requisite: course 15. Culminating development of directorial methods, with particular emphasis on challenges of style in text and production. Students direct scenes under laboratory conditions in alternative stage configurations. Letter grading.

C163D. Directing Project for the Stage. (5) Discussion, three hours; laboratory, four to eight hours. Requisites: courses 163A, 163B, 163C. Application of stage directing techniques in production of short play or project. Students direct one-act play or project. May be repeated once for credit. Concurrently scheduled with course C263D. Letter grading.

170. Design and Production Project. (4) Laboratory, eight hours. Requisites: courses 14A, 14B, 14C. Experience as stage manager or designer, including

participation in preparation and realization of scenic, lighting, costume, or sound designs, or stage management in production. May be repeated once for credit. Letter grading.

171A. Advanced Theater Laboratory. (1 to 4) Hours to be arranged. Creative participation as actor or stage manager in public presentation of departmental productions. May be taken for a maximum of 4 units.

171B. Advanced Theater Laboratory. (1 to 4) Hours to be arranged. Creative participation in realization of production elements related to public presentation of departmental productions. May be taken for a maximum of 4 units.

172. Production Practice in Theater, Film, Video, and Digital Media. (1 to 8) Studio, three to eight hours. Exploration and laboratory experience in one or more various aspects of production and postproduction practice for entertainment media, including theater, film, video, and digital media. May be repeated for maximum of 24 units. Letter grading.

173A. Design Assignment: Assistant Designer. (2) Studio, six hours. Requisites: courses 14A, 14B, 14C. Laboratory experience as an assistant designer, including participation in preparation and realization of scenic, lighting, costume, or sound designs. May be repeated twice. Letter grading.

173B. Production Design Assignment: Designer. (2) Studio, six hours. Requisites: courses 14A, 14B, 14C. Laboratory experience as a designer, including preparation and realization of scenic, lighting, costume, or sound designs. May be repeated twice. Letter grading.

174A. Stage Managing Techniques. (2) Studio, six hours. Requisites: courses 14A, 14B, 14C. Professional duties of stage manager. Problems of unions, professional auditions, organization, scheduling, out-of-town openings, Broadway openings, and responsibilities of a lengthy run. Letter grading.

174B. Project in Stage Management. (3) Studio, nine hours. Requisite: course 174A. Laboratory experience in the professional duties of assistant stage manager, including participation as an assistant stage manager in preproduction, rehearsal, and performance phases of a production. May be repeated once for credit. Letter grading.

174C. Project in Stage Management. (4) Studio, 12 hours. Requisite: course 174A. Laboratory experience in professional duties of stage manager, including participation as stage manager in preproduction, rehearsal, and performance phases of production. Problems of unions, auditions, organization, scheduling, and responsibilities of lengthy run. May be repeated three times for credit. Letter grading.

175A-175C-175D. Summer Theater Workshops. (4 or 8 each) Laboratory, 12 to 24 hours. Participation in various aspects of the theater production and performance. Offered in summer only. Letter grading.

175B. Summer Theater Workshop. (1 to 4) Laboratory, three hours. Participation in various aspects of theater production and performance. Offered in summer only. Letter grading.

177. Computer-Assisted Design Techniques. (4) Studio, six hours. Hands-on exploration of use of computers for design of scenery and lighting in theater, film, and television. May be repeated once for credit. Offered in summer only. Letter grading.

M178. Film and Television Acting Workshop. (2) (Same as Film and Television M177.) Laboratory, four hours. Workshop providing opportunities for students to rehearse, perform, and evaluate scenes. Three different production styles to which performers may need to adjust are (1) preproduction rehearsals with director, (2) single-camera experience, and (3) multiple-camera experience. May be repeated twice for credit. Letter grading.

180. Senior Project. (4) Lecture or studio, three hours. Requisites: courses 101A, 101B, 101C. Preparation of conceptual or creative project to provide culminating experience in production of creative or research work. May be repeated twice for credit. Letter grading.

181. Career Development for Actors. (2) Lecture, three hours; fieldwork, three hours. Limited to seniors. Study of business practices, career entry, and development for actors. P/NP or letter grading.

C185A. Role of Producer in Professional Theater. (2) Lecture, three hours. Study of structure governing economic and artistic decision-making processes in professional theater of America. Concurrently scheduled with course C285A. P/NP or letter grading.

C185B. Role of Management in Educational and Community Theater. (2) Lecture, three hours. Study of artistic, social, and economic criteria in administration of educational and community theater. Concurrently scheduled with course C285B. P/NP or letter grading.

M187. Art Alive: Art and Improvisation in Museums. (4) (Same as Honors Collegium M116.) Seminar, four hours. Offered in collaboration with Los Angeles County Museum of Art (LACMA). Interpretation of art in collection through acting, dialogues, movement, and music. Research into history and art history and production of creative performance piece required. P/NP or letter grading.

195. Community or Corporate Internships in Theater, Film, and Television. (2, 4, or 8) Tutorial, eight, 16, or 24 hours. Limited to juniors/seniors. Internship at various theaters, studios, or entertainment organizations accentuating creative contributions, organization, and work of professionals in their various specialties. Students meet on regular basis with instructor and provide periodic reports of their experience. May be taken for maximum of 8 units. Individual contract with supervising faculty member required. Letter grading.

199. Directed Research or Senior Project in Theater. (2 to 8) Tutorial, three hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

202A. Seminar: Western Classical Theater. (4) Discussion, three hours. Designed for graduate students. Examination of theatrical production and dramatic form in the Greek and Roman periods. May be repeated twice for credit.

202B. Seminar: Medieval Theater. (4) Discussion, three hours. Designed for graduate students. Selected studies of theatrical production and dramatic form in the Middle Ages. May be repeated twice for credit.

202C. Seminar: Renaissance and Baroque Theater. (4) Discussion, three hours. Designed for graduate students. Selected studies in theater architecture, theatrical production, and dramatic form in English and Continental theater from 1485 to the early 18th century. May be repeated twice for credit.

202D. Seminar: Bourgeois and Romantic Theater. (4) Discussion, three hours. Designed for graduate students. Selected studies in theater architecture, theatrical production, and dramatic form in English and Continental theater from 1700 to 1870. May be repeated twice for credit.

202E. Seminar: Modern Consciousness in Theater. (4) Discussion, three hours. Designed for graduate students. Study of prototypes of modern experience as encountered in work of Ibsen and Strindberg. May be repeated twice for credit.

202F. Seminar: Modern Realism. (4) Discussion, three hours. Designed for graduate students. Selected studies of theater's response to science and technology, politics, and revolution. May be repeated twice for credit.

202G. Seminar: Modern Theatricalism. (4) Discussion, three hours. Designed for graduate students. Selected studies in symbolism and avant-garde theater. Exploration of dream experience and private psyche, religious experience, and revitalization of myth and ritual. May be repeated twice for credit.

202M. Seminar: American Theater. (4) Discussion, three hours. Designed for graduate students. Selected studies in development of theatrical production and dramatic writing in American theater. May be repeated twice for credit.

202P. Seminar: Traditions of African Theater. (4) Discussion, three hours. Designed for graduate students. Selected studies of traditional theater forms such as those indigenous to Ghana, Nigeria, and other African nations and their diaspora (Haiti, Jamaica, and other areas of the Caribbean) through examination of character, structure, performance modes, and archetypes. May be repeated twice for credit.

202R. Seminar: East Asian Theater. (4) Discussion, three hours. Designed for graduate students. Selected topics in theater forms of East Asia, including dramatic literature, costume, theater spaces, and critical writings. May be repeated twice for credit.

202S. Seminar: South Asian Theater. (4) Discussion, three hours. Designed for graduate students. Selected topics in theater forms of South Asia, including dramatic literature, costume, theater spaces, and critical writings. May be repeated twice for credit.

202T. Seminar: Southeast Asian Theater. (4) Discussion, three hours. Designed for graduate students. Selected topics in theater forms of Southeast Asia, including dramatic literature, costume, theater spaces, and critical writings. May be repeated twice for credit.

203. Theater Ethics and Issues. (5) Seminar, four hours. Designed for graduate students. Investigation of a selected area of theater and drama study that explores significant issues and ethical considerations of the modern world. May be repeated four times for credit.

204. Theater Genres. (5) Seminar, four hours. Designed for graduate students. Investigation of history and literature of the theater as manifested in one or more of its major forms or genres. May be repeated four times for credit.

205A-205B-205C. Background of Theatrical Art. (5-5-5) Seminar, three hours. Designed for graduate students. Analysis of major plays, commentaries, and historical materials. S/U or letter grading. **205A.** Classical and Medieval Periods; **205B.** Renaissance, Baroque, and Rococo Periods; **205C.** Romantic, Naturalistic, and Symbolist Periods.

206. Themes in World Theater and Drama. (5) Seminar, four hours. Designed for graduate students. Selected topics in world theater history, drama, production, and/or architecture organized on a thematic basis. May be repeated four times for credit.

207A-207B. Theater Aesthetics. (4-4) Designed for graduate students. Discussion of essential issues in aesthetics of theater and drama based on philosophy of art and theories of the theater. **207A.** Classical and Medieval Theories of Art and Theater; **207B.** Renaissance Theories of Art and Theater to the Present.

208A-208B. Dramaturgy I, II. (4-4) Lecture, three hours; laboratory, one hour. Designed for graduate students. Letter grading. **208A.** Theoretical and practical aspects of the dramaturge's work in contemporary theater. **208B.** Requisite: course 208A. Continuation of study of theory and practice of dramaturgy.

208C. Practicum in Dramaturgy. (2 to 12) Laboratory, to be arranged. Requisites: courses 208A, 208B. Demonstration of competence in practice of dramaturgy through completion of approved dramaturgical assignment. May be taken for maximum of 12 units. Letter grading.

209. Theater Authors. (5) Designed for graduate students. Investigation of work of a theater artist from history of world theater, with special emphasis on relationship to time in which the work was generated. May be repeated four times for credit.

210. Topics in World Theater and Drama. (5) Designed for graduate students. Investigation of selected topics in world theater, drama, production, and architecture. May be repeated four times for credit.

216A. Approaches to Representation. (5) Lecture, three hours; laboratory, one hour. Overview of strategies of representation from classical aesthetic theories to postmodern deconstructions of them. May be repeated once for credit. Letter grading.

216B. Approaches to History. (5) Lecture, three hours; laboratory, one hour. Overview of key methodologies, theories, and debates in historiography of theater and performance linked to plays and performances appropriate to approach. Letter grading.

216C. Approaches to Identification. (5) Lecture, three hours; laboratory, one hour. Overview of key theories, methods, debates, and performance texts of identificatory structure between audience member or scholar and theatrical or performance object. Letter grading.

220. Graduate Forum. (1 to 2) Seminar, one to two hours. Limited to graduate theater students. Presentation and discussion of issues informing and affecting contemporary theater. May be repeated four times for credit. S/U grading.

221. Introduction to Performance Studies. (5) Seminar, three hours. Investigation of performance as sustained practice in traditional disciplines such as theater, music, and dance and as lens to focus thinking about human experience in fields such as philosophy, literature, cultural anthropology, linguistics, education, and law. Emphasis on establishing interdisciplinary dialogue across many fields. Letter grading.

CM229. Contemporary Topics in Theater, Film, and Television. (2) (Same as Film and Television CM229.) Lecture, two hours; screenings, two hours. Limited to junior/senior and graduate theater/film and television students. Examination of creative process in theater, film, and television, with consideration of writing, direction, production, and performance. Overview of individual contributions in the collaborative effort; examination of distinctiveness and interrelations among these arts. Individual units include participation of leading members of theater, film, and television professions. May be repeated twice for credit. Concurrently scheduled with course CM129.

230A-230B-230C. Writing for the Contemporary Theater. (4 to 8 each) Lecture, three hours; studio, two hours. Designed for graduate students. Letter grading. **230A.** One-Act Play. Analysis of strategy and dramatic structure of selected contemporary short plays leading to the guided completion and critique of student-written one-act plays. **230B.** Full-Length Play. Analysis of strategy and dramatic structure of selected contemporary full-length plays leading to the guided completion and critique of a student-written full-length play. **230C.** Performance and Text. Exploration of structural strategies, political implications, and technical demands of selected contemporary American plays leading to the guided completion and critique of student work.

231. Special Topics in Playwriting. (4) Lecture, three hours. Analysis and practice of various aspects of playwriting. Variable content selected from topics such as comedy writing, docudrama, experimental theater, writing for alternative audiences, or children's theater. May be repeated twice for credit. Letter grading.

232. Manuscript Analysis. (4) Lecture, three hours. Designed for graduate students. Critical and constructive study of dramatic techniques as employed by playwrights and screenwriters in selected examples of contemporary work. May be repeated once for credit.

241. Research in Technical Theater. (4) Designed for graduate students. Research in technical processes and equipment in theater.

242. Introduction to Design in Production. (4) Lecture or studio, four hours. Introduction to process of design for entertainment, collaborative role of designer, and realization of designs in production. May be repeated once for credit. Letter grading.

243A-243B-243C. Scenic Design. (4-4-4) Advanced study and practice in scenic design for theater. Imagination as impetus for design, text analysis, metaphor, and conceptualization. Investigation of de-

sign research process, composition, and style leading to visual presentation of the design. May be repeated once for credit.

244A-244B. Advanced Theater Production. (2 to 8 each) Studio, 12 to 24 hours. Designed for graduate students. Creative participation in preparation and presentation of a theatrical production. Each course may be taken for a maximum of 8 units. Letter grading.

245A. Production Management. (4) Lecture, three hours. Study in production management for the theater. Examination of professional duties of production manager, including preproduction, rehearsal, and performance phases of a production. Problems of resource management, unions, organization, scheduling, and budgeting while maintaining a creative and collaborative environment. Letter grading.

245B. Production Management. (4) Lecture, three hours. Requisite: course 245A. Advanced study in production management for the theater, with focus on planning process of professional production manager in a seasonal and repertory environment. Problems of resource allocation, unions, organizational structure, scheduling, and budgeting to establish a creative and collaborative environment. Letter grading.

245C. Projects in Production Management. (4) Studio/laboratory. Requisite: course 245B. Laboratory experience in professional duties of production manager, including participation as a production manager in preproduction, rehearsal, and performance phases of a production. Problems of resource management, unions, organization, scheduling, and budgeting. Letter grading.

246A-246B-246C. History of Costume. (4-4-4) Lecture/studio. Designed for graduate students. Study of history of costume as a manifestation of cultural, social, economic, and political influences to provide a historical framework for design of costumes for theater, film, and television. Historic survey and in-depth exploration of a selected period, with study of influences of diverse cultures. Letter grading.

246D. History of Costume Design. (4) Lecture, four hours. Study of history of costume as manifestation of cultural, social, economic, and political influences to provide historical framework for design of costumes for theater, film, and television. Historic survey and in-depth exploration of selected period, with study of influences of diverse cultures. Letter grading.

247. Collaborative Project in Design and Production. (3 to 4) Studio, four hours. Designed for graduate students. Collaborative project in design, including analysis, conceptual development, and preparation of scenic, lighting, costume, or sound designs. May be repeated once for credit. Letter grading.

260. Directing I. (4) Lecture, four hours; studio, 24 hours. Designed for graduate students. Development of directorial skills of analysis, planning, staging, and criticism through medium of written preparations and directing of scenes. Letter grading.

261. Directing Post-Realist Drama. (4) Lecture, four hours; studio, 30 hours. Designed for graduate students. Problems in direction of post-realist plays through interpretation and laboratory scene work. Letter grading.

263. Production Project in Direction for the Stage. (2 to 8) Discussion, one hour; studio, 12 to 30 hours. Designed for graduate students. Direction of a dramatic work, with discussion and critique of work in progress. May be repeated for a maximum of 20 units. Letter grading.

C263D. Directing Project for the Stage. (5) Discussion, three hours; laboratory, four to eight hours. Requisites: courses 163A, 163B, 163C. Application of stage directing techniques in production of short play or project. Students direct one-act play or project. May be repeated once for credit. Concurrently scheduled with course C163D. Letter grading.

264. Directing Classical and Historical Drama. (4) Lecture, four hours; studio, 30 hours. Designed for graduate students. Problems in interpretation and direction of historical or classical drama through medium of laboratory scene work. Letter grading.

265. Modern Theories of Production. (4) Examination of modern theories of production from emergence of the director in the 19th century to the present. Investigation of different responses to problems of creating a vital theatrical event in context of ongoing evolution of theater as an art form. Examination of contribution of significant directors and movements; relation between theater and other forms of representation. Letter grading.

266. Theatrical Conceptualization. (4) Examination of process of conceptualization in dramatic production; centrality of theatrical conceptualization in interpretation of dramatic text; exploration of range of possibilities inherent in different theatrical spaces and options in design components. Consideration of visual arts and music as sources of stimulus for theatrical conceptualization, with focus on collaborative aspect of theatrical production. Letter grading.

272. Production Practice in Theater, Film, Video, and Digital Media. (1 to 8) Studio, three to eight hours. Exploration and laboratory experience in one or more various aspects of production and postproduction practice for entertainment media, including theater, film, video, and digital media. May be repeated for maximum of 24 units. Letter grading.

C285A. Role of Producer in Professional Theater. (2) Lecture, three hours. Designed for graduate students. Study of structure governing economic and artistic decision-making processes in professional theater of America. Concurrently scheduled with course C185A. S/U or letter grading.

C285B. Role of Management in Educational and Community Theater. (2) Lecture, three hours. Designed for graduate students. Study of artistic, social, and economic criteria in administration of educational and community theater. Concurrently scheduled with course C185B. S/U or letter grading.

298A-298B. Special Studies in Theater Arts. (2 to 4 each) Lecture/discussion. Designed for graduate students. Seminar study of problems in theater arts, organized on topic basis. May be repeated once for credit.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personal employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

420A-420B-420C. Advanced Acting I. (4 to 8-4-4) Studio, six to 18 hours. Letter grading:

420A. (4 to 8) Studio, six to 18 hours. Development of an internal technique, beginning with an autodrama which is a dramatization of one's personal history. Scene work follows, with emphasis on off-stage preparations, improvisations capturing the circumstances, life of the character, and intentions of the scene. Letter grading.

420B. (4) Studio, six to 18 hours. Scene work, usually from 20 to 30 minutes in length. Continuation of work on off-stage preparation, with further development of how the actor goes about doing research and fieldwork on the character being played. Letter grading.

420C. (4) Studio, six to 18 hours. Development of an external technique through comedy and of skits, improvisation, physical humor, delivery of a line, rhythm, timing, and public cabaret. Fusion of the internal; use of action and objective with the external. Letter grading.

421A-421B-421C. Advanced Acting II. (4 or 8 each) Studio/laboratory, six to 18 hours. Letter grading. **421A.** Extending the idea of autobiography and using it as art. The actor as performance artist. Playing characters quite removed from oneself. Using language. Using Shakespeare and oneself to play him. **421B.** Continued character behavior study through language and movement. Further work on actions, objectives, and researching the role. **421C.** Comedy workshop. Exploration of craft of comedy and development of cabaret pieces.

422. Advanced Acting for Theater, Film, and Television. (8 to 12) Studio/laboratory. Intensive performance experience. May be repeated for a maximum of 24 units. Letter grading.

423. Advanced Acting for Camera. (4) Studio, three hours. Development and practice in performance techniques for film and television. Exploration of language used by actors and directors in film and television production and subtle differences between acting for stage and camera. Working in multicamera studio environment, students prepare and tape scenes for analysis. May be repeated twice for credit. Letter grading.

424A-424B-424C. Advanced Voice and Speech I. (2 or 4 each) Studio/laboratory, three to six hours. Development of voice and speech techniques for the stage, including those of relaxation, breathing, resonance, and development of speaking voice. Speech training uses International Phonetic Alphabet to train students in standard American speech. Text work in poetry and prose. Letter grading.

424D-424E-424F. Advanced Voice and Speech II. (2 or 4 each) Studio/laboratory, three to six hours. Advanced voice problems. Extension of first-year work, with increased demands on voice. Range, resonance, and breathing capacity extension. Articulation and phonetic alphabet. Text work in classical verse. Letter grading.

424G-424H-424I. Advanced Voice and Speech III. (2 or 4 each) Studio, three to six hours. Extension of second-year work, with increased demands on voice/speech, range, resonance, and breathing capacity extension. Application of ear training and International Phonetic Alphabet to creation of dialect and accents, as well as systematic approach to creating dialect charts. Letter grading.

425A-425B-425C. Advanced Movement I. (2 or 4 each) Studio/laboratory, three to six hours. Discovery of body's unique language through exercises designed to explore and free the total instrument. Development of a flexible actor with range, expression, and confidence physically. Awakening of the imagination while exploring the worlds of ritual, animal, conceptual, and modern dance movements. Letter grading.

425D-425E-425F. Advanced Movement II. (2 or 4 each) Studio/laboratory, three to six hours. Presentation of a more complete picture of stage movement and its relationship to theater, music, and dance. Advancement of physical training of individual actors to their maximum potential. Experience in techniques and discovery of origins of a variety of acrobatic and dance disciplines, including ballet, ballroom, period dance, and circus techniques. Letter grading.

425G-425H-425I. Advanced Movement III. (2 or 4 each) Studio, three to six hours. Advanced physical training for actors in one or more movement, dance, or combat discipline: capoeira, martial arts, ballet, ballroom, period dance, circus techniques. Letter grading.

426A-426B-426C. Alexander Techniques. (2 or 4 each) Studio, three to six hours. Study and practice in Alexander techniques as method of developing balance, poise, and coordination of body and mind. Exploration of use of rhythm to expand movement potential of actors and relevant use of visual arts and animal studies to character development and to expansion of movement potential. Letter grading.

429. Performance Workshop. (2) Studio, four hours. Limited to graduate students not enrolled in M.F.A. acting program. Exercises in performance techniques, including autodrama and scene study. Development of performance skills through scene study, use of self, and personalization. Examination of characterization exercises and their application to scenes. Letter grading.

430A-430B-430C. Advanced Studies in Playwriting. (4 to 8 each) Lecture, three hours. Limited to M.F.A. playwriting program students. Guided completion of full-length scripts for the stage.

431. Special Topics in Playwriting. (4) Discussion, three hours. Designed for M.F.A. playwriting program students. Analysis and practice of varied aspects of playwright's art. Variable content selected from topics such as comedy writing, docudrama, writing for alternative audiences, adaptation from stage to screen, children's theater, or improvisational techniques. May be repeated twice for credit.

432. Theatrical Adaptation. (4) Lecture, three hours. Requisites: courses 230A, 230B, 230C. Survey of contemporary adaptation for stage, with selected readings of playwriting adaptation techniques, and outline and development of adaptation for stage. Letter grading.

C433A-C433B-C433C. Script Development Workshops. (4 to 8 each) Lecture, three hours; studio, four to 24 hours. Designed for graduate students. Guided process of script development, with emphasis on communication, artistic growth, and professional process. Each course may be taken for a maximum of 8 units. Concurrently scheduled with courses C133A-C133B-C133C. Letter grading.

435AF-435AW-435AS. Problems in Advanced Writing for the Stage. (0-0-2) Lecture. Limited to M.F.A. candidates. Review discussion and critique of playwriting projects. May be repeated for a maximum of 6 units. In Progress (435AF, 435AW) and S/U (435AS) grading.

C440A. Introduction to Programming for Entertainment Design. (4) Studio, three hours. Study and practice in object-based programming using MAX/MSP programming language. May be repeated once for credit. Concurrently scheduled with course C140A. Letter grading.

C440B. Advanced Programming for Entertainment Design. (4) Studio, three hours. Study and practice in object-based programming using MAX/MSP programming language to control sound and video. May be repeated once for credit. Concurrently scheduled with course C140B. Letter grading.

C440C. Advanced Projects in Programming for Entertainment Design. (4) Studio, three hours. Advanced projects using object-based programming to control sound and video. May be repeated once for credit. Concurrently scheduled with course C140C. Letter grading.

441A-441B-441C. Lighting Design. (4-4-4) Lecture/studio. Letter grading:

441A. (4) Lecture/studio. Study and practice in lighting the actor, emphasizing textual and character analysis from lighting designer's perspective, conceptual development with the director, effect of light on dynamics of staging, use of color in light, and relationship of lighting designer to the actor. May be repeated once for credit. Letter grading.

441B. (4) Lecture/studio. Study of use of light and color to define space, effect of light on scenery and costumes, lighting for arena/thrust theaters, multisensory productions, lighting patterns, and moving scenery. May be repeated once for credit. Letter grading.

441C. (4) Lecture/studio. Investigation of lighting design in production, musical theater, opera, touring, and repertory situations. Study of analysis of script and score for lighting designer. May be repeated once for credit. Letter grading.

441D. Scenic Projection and Media Techniques. (4) Lecture/laboratory. Designed for graduate students. Advanced study and practice in scenic projection and media techniques, with emphasis on analysis, design, and execution of theatrical projection and photographic technique for the stage.

442A-442B-442C. Costume Design. (4-4-4) Lecture/studio. Advanced study and practice in costume design for theater. Imagination as impetus for design, text analysis, metaphor, and conceptualization. Investigation of design research process, period style, and character analysis leading to visual presentation of the design. Study of costume design for theatrical productions, ballet, opera, and musical theater. May be repeated once for credit. Letter grading.

443. Problems in Design. (2 or 4) Lecture/laboratory, four hours (additional hours as required). Study and practice in design techniques for theater. May be repeated for a maximum of 12 units.

C444A-C444B-C444C. Advanced Sound Design. (4-4-4) Lecture, four hours; laboratory, four hours. Concurrently scheduled with courses C144A-C144B-C144C. Letter grading:

C444A. (4) Lecture, four hours; laboratory, four hours. Study of sound and acoustics as they relate to performance environments, techniques associated with recording, mixing, processing, automation, and reproduction of dialogue, effects, and music tracks for theater sound design. May be repeated once for credit. Letter grading.

C444B. (4) Lecture, four hours; laboratory, four hours. Advanced study and practice in preparation and re-recording of theater sound designs, with emphasis on analysis of script and score, conceptual development of the design, and multitrack recording techniques to realize the design. May be repeated once for credit. Letter grading.

C444C. (4) Lecture, four hours; laboratory, four hours. Study and practice in processing and mixing of live and recorded sound; mix-down of multitrack recordings; preparation of sound tracks and sound reinforcement in theater. Study of creation of sound effects, control of MIDI data, and design techniques for music theater. May be repeated once for credit. Letter grading.

445A-445B. Production Design for Film, Television, and Entertainment Media. (4-4) Lecture/studio, four hours. Study and practice in design of scenic environment for film, video, and entertainment media, including effect of differing media on design choices, role of production designers and art directors, and design for single- and multiple-camera production. Each course may be repeated once for credit. Letter grading.

C446A-C446B-C446C. Art and Process of Entertainment Design. (4-4-4 to 8) Lecture. Conceptualization, design, and prototyping of interactive theatrical events. Each course may be repeated once for credit. Concurrently scheduled with courses C146A-C146B-C146C. Letter grading:

C446A. (4) Lecture, three hours. Exploration of original forms of media-rich entertainment experience through lectures, presentations, and seminar participation. Students form collaborative teams to conceive and propose interactive entertainment events. May be repeated once for credit. Letter grading.

C446B. (4) Lecture, three hours. Prototype development; two to five proposals to be more completely defined and developed. Students form collaborative teams for further conceptual development of their project proposals. May be repeated once for credit. Letter grading.

C446C. (4 to 8) Lecture, three to six hours. Prototype development; conceptual refinement and technological realization of prototypes, which may entail creation of elaborate proposals containing storyboards, budgets, and models or may involve production of short "performances" demonstrating entertainment potential of concepts or prototypes. May be repeated once for credit. Letter grading.

448A-448B. Costume Design for Film, Television, and Entertainment Media. (4-4) Lecture/studio, four hours. Study and practice in design of costumes for live and virtual characters in film, television, and entertainment media, including effect of differing media on design choices. Each course may be repeated once for credit. Letter grading.

449. Design Thesis Project. (4) Lecture/studio, four hours. Series of group design projects that serve as comprehensive examination for M.F.A. degree in entertainment design. Review and evaluation of projects by design faculty members from all areas of curriculum. Letter grading.

C451A. Scenic Design. (4) Lecture/studio, four hours. Imagination as impetus for design, text analysis, metaphor, and conceptualization. Investigation of design research process, composition, and style leading to visual presentation of design. May be repeated once for credit. Concurrently scheduled with course C151A. Letter grading.

C451B. Scenic Design for Theater. (4) Lecture/studio, four hours. Study of scenic design for proscenium, thrust, and arena configurations, multiset productions, and music theater. May be repeated once for credit. Concurrently scheduled with course C151B. Letter grading.

C451C. Production Design for Film, Television, and Video. (4) Lecture/studio, four hours. Study of role of art director, scenic design for single-camera and multicamera production, and set decoration. May be repeated once for credit. Concurrently scheduled with course C151C. Letter grading.

C452A. Lighting Design. (4) Lecture/studio, four hours. Study of lighting, with emphasis on imagination, text analysis, metaphor, and conceptualization. Investigation of composition and control of light and color in relation to actor. May be repeated once for credit. Concurrently scheduled with course C152A. Letter grading.

C452B. Lighting Design for Theater. (4) Lecture/studio, four hours. Study of lighting design for proscenium, thrust, and arena configurations, music theater, and concert lighting. May be repeated once for credit. Concurrently scheduled with course C152B. Letter grading.

C452C. Lighting Design for Television. (4) Lecture/studio. Study of current professional lighting design practices in television for single- and multiple-camera production. Concurrently scheduled with course C152C. Letter grading.

C453A. Costume Design. (4) Lecture/studio, four hours. Imagination as impetus for design, text analysis, metaphor, and conceptualization. Investigation of design research process, composition, and style leading to visual presentation of design. May be repeated once for credit. Concurrently scheduled with course C153A. Letter grading.

C453B. Costume Design for Theater. (4) Lecture/studio, four hours. Study of costume design for proscenium, thrust, and arena configurations, multiset productions, and music theater. May be repeated once for credit. Concurrently scheduled with course C153B. Letter grading.

C453C. Costume Design for Film and Television. (4) Lecture/studio, four hours. Study of current professional costume design and wardrobe practices in film and television, including effect of differing media on design choices. May be repeated once for credit. Concurrently scheduled with course C153C. Letter grading.

C454A. Sound Design. (4) Lecture/studio, four hours. Introduction to sound and audio in acoustic, audio, and digital domain. Study and practice of techniques for recording, editing, and creating soundscapes. May be repeated once for credit. Concurrently scheduled with course C154A. Letter grading.

C454B. Sound Design for Theater. (4) Lecture/studio, four hours. Exploration of sound design for theater and techniques for mixing, reinforcement, and signal processing. Topics include use of delay, equalization, and microphone placement for theater sound reinforcement. Study of creation of sound effects, control of MIDI data, and design techniques for musical theater. May be repeated once for credit. Concurrently scheduled with course C154B. Letter grading.

C454C. Sound for Film and Television. (4) Lecture/studio. Study of current professional sound recording, rerecording, mixing, and synchronization practices for film and television. Concurrently scheduled with course C154C. Graduate students expected to produce designs demonstrating a higher level of proficiency and skill. Letter grading.

C455A-C455H. Graphic Representation of Design. (2 each) Studio. Concurrently scheduled with courses C155A-C155H. Letter grading:

C455A. Perspective Drawing. (2) Studio, four hours. Requisite: course 147A or 147B. Introduction to use of pencil and pen to communicate scenic designs, including one- and two-point perspective, form light, shade, and textures. Graduate students expected to produce drawings demonstrating a higher level of proficiency and skill. Letter grading.

C455B. Watercolor Rendering. (2) Studio, four hours. Requisite: course 147A or 147B. Study of watercolor techniques as they relate to interpretation of scenic designs, including painting of brick, wood, stone, fabrics, and other surfaces. Graduate students expected to produce drawings demonstrating a higher level of proficiency and skill. Letter grading.

C455C. Marker Rendering. (2) Studio, four hours. Requisite: course 147A or 147B. Study and practice of marker rendering techniques as a means of communication for scenic and costume designers. Letter grading.

C455D. Model Making. (2) Studio, four hours. Requisite: course 147A or 147B. Study of the model for representation of scenic designs from initial working prototypes to finished color models. Use of wide variety of materials and techniques for execution of the model. Graduate students expected to produce models demonstrating a higher level of proficiency and skill. Letter grading.

C455E. Life Drawing. (2) Studio, four hours. Requisite: course 147A or 147B. Study and practice in drawing of human form. Letter grading.

C455F. Costume Rendering. (2) Studio, four hours. Requisite: course 147A or 147B. Study of techniques for rendering theatrical costumes, with emphasis on figure, clothing, and fabrics. Letter grading.

C455G. Scene Painting Techniques. (2) Studio, four hours. Requisite: course 147A or 147B. Study of scenic painting techniques and materials and their realization of color design and elevations. May be repeated once for credit. Letter grading.

C455H. Selected Topics in Graphic Representation of Design. (2) Studio, six hours. Group study of selected subjects in techniques for interpretation of design for theater. May be repeated once for credit. Letter grading.

C456A. Introduction to Computer-Assisted Drafting. (4) Studio, four hours. Requisite: course 147A. Investigation of drawing and editing techniques, drawing floor plan sections, and elevation drawings using AutoCAD. Concurrently scheduled with course C156A. Letter grading.

C456B. Advanced Computer-Assisted Drafting. (4) Studio, four hours. Requisite: course 147A. Investigation of drafting techniques for scenic and lighting designs using AutoCAD. Concurrently scheduled with course C156B. Letter grading.

C456C. Computer-Assisted Rendering. (4) Studio, four hours. Investigation of three-dimensional lighting and scenic design previsualization: wire-frame perspective drawing and photo-realistic computer rendering techniques using three-dimensional studio. Concurrently scheduled with course C156C. Letter grading.

C456D. Introduction to Computer-Assisted Drafting. (4) Studio, four hours. Requisite: course 147A. Investigation of drawing and editing techniques, drawing floor plan sections, and elevation drawings using Vectorworks. Concurrently scheduled with course C156D. Letter grading.

C456E. Advanced Computer-Assisted Drafting. (4) Studio, four hours. Requisite: course 147A. Investigation of drafting techniques for scenic and lighting designs using Vectorworks. Concurrently scheduled with course C156E. Letter grading.

C456F. Introduction to Computer-Assisted Rendering. (4) Studio, four hours. Investigation of three-dimensional lighting and scenic design previsualization: wire-frame perspective drawing and photo-realistic computer rendering techniques using Vectorworks. Concurrently scheduled with course C156F. Letter grading.

C457A-C457B-C457C. Costume Construction Techniques. (2-2-2) Studio, four hours. Study of theory and application of drafting, pattern making, fitting, and construction techniques for period costumes and undergarments to achieve authentic-appearing costume using contemporary methods. May be repeated once for credit. Concurrently scheduled with courses C157A-C157B-C157C. S/U or letter grading. **C457A.** Requisites: courses 14A, 14B, 14C. Introduction to draping, pattern grading fitting, and slash and spread adaptation. **C457B.** Requisite: course C457A. Introduction to costume drafting, construction of period undergarments. **C457C.** Requisites: courses C457A, C457B. Draping, patterning, and fitting techniques for period garments.

C458A. Scenic Design Technology. (4) Lecture/studio. Requisites: courses 14A, 14B, 14C. Investigation of materials, systems, and techniques for realization of scenic designs for theater, film, and television. Study of advanced techniques and materials for con-

struction, finishing, and rigging of scenery and properties. Concurrently scheduled with course C158A. Letter grading.

C458B. Lighting Design Technology. (4) Lecture/studio. Requisites: courses 14A, 14B, 14C. Investigation of materials, systems, and techniques for realization of lighting designs for theater, film, and television. Study of design, operation, and performance of lighting instruments, dimming equipment, and control systems, including automated fixtures, projection equipment, and computer systems for lighting. Concurrently scheduled with course C158B. Letter grading.

C458C. Sound Design Technology. (4) Lecture/studio. Requisites: courses 14A, 14B, 14C. Investigation of materials, systems, and techniques for realization of sound designs for theater, film, and television. Study of operation and performance of equipment for recording, mixing, and reproduction of theater sound. Concurrently scheduled with course C158C. Letter grading.

459A-459B. Directing for Theater, Film, and Television. (4-4) Lecture, three hours. Limited to graduate theater students. Analysis and exploration, with specific scenes, of differences and many similarities in directorial approach to same literary material in three media.

460AF-460AW-460AS. Contemporary Issues in Direction. (1-1-1) Discussion, three hours. Designed for graduate students. Discussion of role of director in contemporary professional practice. Review discussion and critique of directing projects. May be repeated for a maximum of 4 units. Letter grading.

460B-460C. Problems in Advanced Direction for the Stage. (4-4) Lecture, to be arranged. Limited to M.F.A. candidates. Discussion and critique of work in progress. **460B.** Preparation and presentation of a published play under rehearsal conditions. **460C.** Preparation and presentation of a full-length original play under rehearsal conditions.

462. Advanced Directing. (8 or 12) Studio, 12 or 30 hours. Designed for graduate students. Advanced problems in directing for theater, film, and television. May be repeated for maximum of 24 units. Letter grading.

463. Production Project in Direction for the Stage (8 or 12 units). Studio, 24 hours. Designed for graduate students. Creative participation as director in conceptualization and preparation of a dramatic work. Letter grading.

472. Production Practice in Theater, Film, Video, and Digital Media. (1 to 8) Studio, three to eight hours. Exploration and laboratory experience in one or more various aspects of production and postproduction practice for entertainment media, including theater, film, video, and digital media. May be repeated for maximum of 24 units. Letter grading.

474. Advanced Projects in Design and Production. (4) Lecture/studio, four hours. Study and practice in preparation and execution of designs for theater, film, video, and related entertainment forms. As contributing artistic member of design team, creative responsibilities include designer, technical supervisor, or production manager. May be repeated for maximum of 16 units. Letter grading.

495A-495B-495C. Practicum and Practice in Teaching Theater. (2-2-2) Seminar, to be arranged; discussion, two hours. Limited to Ph.D. students. Study and practice of teaching theater at university level. Orientation and preparation of graduate (Ph.D.) students who have responsibility to assist in teaching undergraduate courses in department. Discussion of problems common to the teaching experience. Letter grading.

498. Professional Internship in Theater, Film, and Television. (4, 8, or 12) Full- or part-time at a studio or on a professional project. Designed for advanced M.F.A. students. Internship at various film, television, or theater facilities accentuating creative contribution, organization, and work of professionals in their various specialties. Given only when projects can be scheduled.

501. Cooperative Program. (2 to 8) Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair,

and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596A. Directed Individual Studies: Research. (2 to 12) Tutorial, to be arranged. Designed for graduate students. May be repeated with consent of instructor. S/U or letter grading.

596B. Directed Individual Studies: Writing. (2 to 12) Tutorial, to be arranged. Designed for graduate students. May be repeated with consent of instructor. S/U or letter grading.

596C. Directed Individual Studies: Directing. (2 to 12) Tutorial, to be arranged. Designed for graduate students. May be repeated with consent of instructor. S/U or letter grading.

596D. Directed Individual Studies: Design. (2 to 12) Tutorial, to be arranged. Designed for graduate students. May be repeated with consent of instructor. S/U or letter grading.

596E. Directed Individual Studies: Acting. (2 to 12) Tutorial, to be arranged. Designed for graduate students. May be repeated with consent of instructor. S/U or letter grading.

596F. Directed Individual Studies: Production. (2 to 12) Tutorial, to be arranged. Designed for graduate students. May be repeated with consent of instructor. S/U or letter grading.

597. Preparation for Ph.D. Qualifying Examinations in Theater Arts. (2 to 8) Tutorial, to be arranged. May be repeated for a maximum of 12 units. S/U grading.

598. M.A. Thesis in Theater Arts. (2 to 8) Tutorial, to be arranged. Preparation: advancement to M.A. candidacy. Research and writing for M.A. thesis. May be repeated for a maximum of 12 units. S/U grading.

599. Ph.D. Dissertation in Theater Arts. (2 to 8) Tutorial, to be arranged. Preparation: advancement to Ph.D. candidacy. Research and writing for Ph.D. dissertation. May be repeated for a maximum of 12 units. S/U grading.

URBAN PLANNING

School of Public Affairs

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Brian D. Taylor, Ph.D., *Chair*

Professors

Randall D. Crane, Ph.D.
Dana Cuff, Ph.D.
Susanna B. Hecht, Ph.D.
Jacqueline Leavitt, Ph.D.
Anastasia Loukaitou-Sideris, Ph.D.
Barbara J. Nelson, Ph.D.
Paul M. Ong, Ph.D.
Gary A. Orfield, Ph.D.
Donald C. Shoup, Ph.D.
Edward W. Soja, Ph.D.
Michael A. Stoll, Ph.D.
Michael C. Storper, Ph.D.
Lois M. Takahashi, Ph.D.
Brian D. Taylor, Ph.D.
Christopher C. Tilly, Ph.D.
Abel Valenzuela, Jr., Ph.D.
Min Zhou, Ph.D.

Professors Emeriti

Leland S. Burns, Ph.D.
John R. Friedmann, Ph.D.
J. Eugene Grigsby III, Ph.D.

Allan D. Heskin, Ph.D., LL.B.
Shirley Hune, Ph.D.
Robin S. Liggett, Ph.D.
James E. Lubben, D.S.W.

Associate Professors

Eric R. Avila, Ph.D.
Evelyn A. Blumenberg, Ph.D.
Leobardo F. Estrada, Ph.D.
Vinit Mukhija, Ph.D.

Assistant Professor

Rui Wang, Ph.D.

Lecturers

Stephen K. Commins, Ph.D.
Carol E. Goldstein, B.A.
Gilda Haas, M.A.
Goetz Wolff, M.Phil.

Scope and Objectives

The professional urban planner works on the creation and management of the urban environment, including its physical, economic, and social elements. Housing, transportation, air and water quality, the preservation of historic communities, and the development of community-level economic and employment programs are some of the tasks undertaken by recent graduates of the UCLA Department of Urban Planning. Graduates have taken positions in local, state, and national governments, and increasingly with nonprofit and private companies whose products and services affect the urban environment. While most UCLA graduates find positions in the U.S., the program offers the opportunity to specialize in development planning abroad, including rural development, and many graduates have found positions in Latin America, Africa, and Asia.

The program offers an undergraduate minor in Urban and Regional Studies, a two-year Master of Urban and Regional Planning (M.U.R.P.) degree, and a Ph.D. degree. Concurrent degree programs allow students to combine study for a M.U.R.P. in Urban Planning with work toward an M.B.A. in the John E. Anderson Graduate School of Management, a J.D. in the School of Law, an M.Arch. I in the Department of Architecture and Urban Design, or an M.A. in Latin American Studies.

The department takes pride in its collegial atmosphere. It features a lively mix of students from diverse academic backgrounds, drawn from many foreign countries and from every avenue of American life. It includes many members of racial and ethnic minority groups, and more than half the students are women. Student organizations provide an interesting program of extracurricular activities.

Undergraduate Study

Urban and Regional Studies Minor

The scale, diversity, balkanized governance, and natural environment of Southern California all contribute to making it an extraordinary natural laboratory for learning about urban and regional issues, whether the focus is on immigration, employment, the built environment, trans-

portation, poverty, natural resources, or a host of other challenges. The Urban and Regional Studies minor offers undergraduate students a means to address some of these issues from an interdisciplinary perspective, giving a balanced mixture of theory, practice, and service learning courses.

To enter the minor, students must be in good academic standing with an overall grade-point average of 2.0 or better, have completed 90 or more units, and complete either Urban Planning 120 or 121 with a grade of C or better. An introductory course in geography, political science, or sociology is recommended. For further information, contact the program director/counselor at (310) 206-8966.

Required Courses (28 units): (1) Urban Planning 120 or 121 with a grade of C or better; (2) five elective courses selected as follows: (a) at least three courses from Public Policy 10A, 104, C115, M120, C147, Urban Planning 120 (unless taken under item 1), 121 (unless taken under item 1), 130, C133, 141, M150, CM160, CM165, M175, C184 and (b) up to two courses from Anthropology 167, Chicana and Chicano Studies 181, Geography 150, History 145A, 145B, Management 175, Political Science 143B, Sociology 158 (students may petition to include a School of Public Affairs course not listed above to fulfill an elective requirement); (3) capstone project that may be satisfied by one of the following: (a) Urban Planning 185SL—service learning project or (b) Urban Planning 199 or a 199 in the College of Letters and Science with a faculty mentor affiliated with this minor—individual research project.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of Urban Planning offers the Master of Urban and Regional Planning (M.U.R.P.) degree and the Doctor of Philosophy (Ph.D.) degree in Urban Planning. Four concurrent degree programs (Urban Planning M.U.R.P./Architecture M.Arch. I, Urban Planning M.U.R.P./Latin American Studies M.A., Urban Planning M.U.R.P./Law J.D., and Urban Planning M.U.R.P./Management M.B.A.) are also offered.

Urban Planning

Upper Division Courses

120. Introduction to Cities and Planning. (4) Lecture, three hours. Survey of urban history and evolution in U.S., urban social theory, current growth trends, system of cities, urban economy and economic restructuring, traditional and alternative location theories, urban transportation, and residential location and segregation. P/NP or letter grading.

121. Urban Policy and Planning. (4) Lecture, three hours. Examination of current urban planning and policy issues and debates, such as normative theories of good urban form, metropolitan organization and governance, economic development and growth management, edge cities, spatial mismatch hypothesis, urban poverty, racial/ethnic inequality, gender and urban structure, sustainability, and future of cities. P/NP or letter grading.

M122. Policy, Planning, and Community. (4) (Same as Asian American Studies M108.) Lecture, three hours; field laboratory. Project-oriented methods course on conducting needs assessment in Asian American communities. Geographic information systems to be used to define problems and needs. Letter grading.

129. Special Topics in Urban Policy and Research. (4) Lecture, three hours. Examination of particular planning/policy subfield (e.g., economic development, environmental planning, housing and community development, international planning and development, land use, or urban design) in some depth. Specific topic area rotates depending on instructor. May be repeated for credit with topic change. P/NP or letter grading.

130. Fundamentals of Urban and Regional Economics. (4) Lecture, three hours. Preparation: one introduction to microeconomics course. Most U.S. population lives and works in urbanized areas, and world's population is becoming more urbanized with each passing decade. National, state, and local governments are engaged in managing, planning, policymaking, and governance in urban context. Ultimate efficacy of those public activities can be enhanced by understanding of economic forces acting on urban areas. Basic concepts related to location choice, agglomeration effects, economies of scale, and specialization by cities and transportation. P/NP or letter grading.

C133. Political Economy of Urbanization. (4) Lecture, three hours. Introduction to new approaches to urban studies, basic concepts and analytical approaches of urban political economy, with major emphasis on American urban problems and restructuring of modern metropolis. Topics include historical geography of urbanization, development and transformation of urban spatial structure, suburbanization and metropolitan political fragmentation, urban fiscal crisis, and role of urban social movements. Concurrently scheduled with course C233. P/NP or letter grading.

CM137. Southern California Regional Economy. (4) (Same as Labor and Workplace Studies M180.) Lecture, three hours. Introduction to regional economy, with emphasis on Los Angeles. Key economic sectors, labor market composition, and review of conflicting portrayals depicting dynamics of region. Two all-day bus tours of key economic regions and guest lectures by regional experts included. Concurrently scheduled with course C237C. Letter grading.

M140. Issues in Latina/Latino Poverty. (4) (Same as Chicana and Chicano Studies M121 and Labor and Workplace Studies M121.) Lecture, four hours. Examination of nature and extent of urban and rural poverty confronting Latina/Latino population in U.S. Special emphasis on antipoverty policies of government and nonprofit organizations and social planning and economic development strategies. Attention also to literature on underclass. Letter grading.

141. Planning for Minority Communities. (4) Lecture, three hours. Introduction to inner-city policy issues on three separate levels: (1) each student develops comprehensive inner-city urban program using materials from Alternatives Inner-City Future Exercise, (2) each student is expected to identify value as-

sumptions and theories of social justice implicit or explicit in alternative intervention programs, and (3) each student is expected to participate in class discussions that emphasize minority issues that affect implementation. P/NP or letter grading.

M150. Transportation Geography. (4) (Same as Geography M149.) Lecture, three hours. Designed for juniors/seniors. Study of geographical aspects of transportation, with focus on characteristics and functions of various modes and on complexities of intra-urban transport. P/NP or letter grading.

151. Urban Transportation Economics. (4) Lecture, three hours. Big cities offer many attractions, but high density also produces traffic congestion and air pollution. Can we have dense urban areas without congested traffic and polluted air? Analysis of economic explanations for transportation problems and examination of possible solutions. Because university campuses resemble small cities, they are used as examples to explore various policies (such as BruinGO at UCLA) that universities have adopted to improve transportation. Letter grading.

CM160. Environmental Politics and Governance. (4) (Same as Environment M164.) Lecture, three hours. Environmental planning is more than simply finding problems and fixing them. Each policy must be negotiated and implemented within multiple, complex systems of governance. Institutions and politics matter deeply. Overview of how environmental governance works in practice and how it might be improved. Concurrently scheduled with course C260. Letter grading.

M162. Land Use and Development. (4) (Same as Environment M162.) Lecture, four hours. Examination of institutional and historical evolution of land use in U.S. Comparison and contrasting of how cities have evolved in different parts of U.S. and some recent trends in urbanization. Relationship of state-level land-use policies and politics and ways in which localities plan. Environmental, social, and equity aspects of different patterns of urbanization and likely trends into future. Letter grading.

M163. California Sustainable Development: Economic Perspective. (4) (Same as Environment M135 and Public Policy M149.) Lecture, three hours. Examination of specific environmental challenges that California faces. Microeconomic perspective used, with special emphasis on incentives of polluters to reduce their pollution and incentives of local, federal, and state government to address these issues. Focus on measurement and empirical hypothesis testing. P/NP or letter grading.

CM165. Environmentalism: Past, Present, and Future. (4) (Same as Environment M132 and Geography M115.) Lecture, three hours; discussion, one hour. Exploration of history and origin of major environmental ideas, movements or countermovements they spawned, and new and changing nature of modern environmentalism. Introduction to early ideas of environment, how rise of modern sciences reshaped environmental thought, and how this was later transformed by 19th-century ideas and rise of American conservation movements. Review of politics of American environmental thought and contemporary environmental questions as they relate to broader set of questions about nature of development, sustainability, and equity in environmental debate. Exploration of issues in broad context, including global climate change, rise of pandemics, deforestation, and environmental justice impacts of war. Concurrently scheduled with course C265. Letter grading.

CM166. Global Environment and Development: Problems and Issues. (4) (Same as Geography M128.) Lecture, three hours; discussion, one hour. Designed for juniors/seniors. Questions of population, resource use, Third World poverty, and environment. Analysis of global economic restructuring and its connections to changing organization of production and resulting environmental impacts. Case studies from Africa, Latin America, Asia, and U.S. Concurrently scheduled with course C266. P/NP or letter grading.

M170. Human Environment: Introduction to Architecture and Urban Planning. (4) (Same as Architecture and Urban Design M170.) Lecture, three hours; outside study, nine hours. Kinds of problems that arise in creating and maintaining environment for urban activities, and approaches and methods of architecture and urban planning in helping to cope with such problems. Complexities involved in giving expression to human needs and desires in provision of shelters and movement systems, to possibilities and limitations of technology and building forms, and to issues involved in relating human-made to natural environment. Students encouraged to comprehend major urban issues both as citizens and as potential technical experts. P/NP or letter grading.

M171. Planning Issues in Latina/Latino Communities. (4) (Same as Chicana and Chicano Studies M122 and Labor and Workplace Studies M122.) Lecture, four hours. Exploration of socioeconomic, demographic, and political forces that shape low-income communities and analyses of planning intervention strategies. Emphasis on community and economic development and environmental equity. Letter grading.

M175. Women and Cities. (4) (Same as Women's Studies M175.) Lecture, three hours. Limited to juniors/seniors. Examination of relationship between women and cities: (1) how cities have affected women's opportunities for economic and social equality, (2) women's contributions to development of U.S. cities, and (3) contemporary strategies and efforts to create urban environments that reflect women's needs and interests. P/NP or letter grading.

C184. Looking at Los Angeles. (4) Lecture, three hours. Introduction to history and physical form of Los Angeles, with emphasis on understanding social, economic, and political issues in development of Los Angeles. Concurrently scheduled with course C284. Letter grading.

185SL. Community-Based Research in Planning. (4) Seminar, one hour; fieldwork, three hours. Preparation: at least four Urban and Regional Studies minor courses, of which at least one should be related to subject area of service learning setting. Limited to junior/senior minor students. Designed to serve as complement to service learning requirement and may be used to fulfill capstone requirement for minor. Students are matched to public, private, or nonprofit agency through Center for Community Learning and must complete minimum of 30 hours of work. Duties and responsibilities to be set by students and sponsoring organizations. Readings to be determined in consultation with instructor. P/NP grading.

195. Community Internships in Urban Planning. (4) Tutorial, 12 hours. Limited to junior/senior Urban and Regional Studies minors. Internship in supervised setting in community agency or urban planning setting. Students meet on regular basis with instructor and provide periodic reports of their experience. May be repeated for credit. Individual contract with supervising faculty member required. P/NP grading.

199. Directed Research in Urban Planning. (2 to 8) Tutorial, three hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for credit. Individual contract required. P/NP or letter grading.

Graduate Courses

M201. Theories of Architecture. (4) (Same as Architecture and Urban Design M201.) Lecture, three hours. Exploration of conceptual and historical structures that shape current issues in architectural theory. Readings in primary texts serve as framework for understanding nature of speculative inquiry in architectural context. Letter grading.

M202A-202B. Public Control of Land Development. (3 to 6 each) (Same as Law M286.) Lecture, three hours. Course M202A is enforced requisite to 202B. Analysis of legal and constitutional constraints on land-use planning and development; administrative and environmental regulatory processes, including relationship between law and planning, formulating land-use legislation, zoning, subdivision controls, emi-

nant domain, taxation, urban development, environmental law, and negotiation. Theory and doctrine applied to case studies; research project/paper and/or examination required. In Progress (M202A) and S/U or letter (202B) grading.

M203A-203B. Seminar: Urban Affairs. (3 to 6 each) (Formerly numbered M202C.) (Same as Law M526.) Seminar, three hours; two field trips. Course M203A is enforced requisite to 203B. Consideration of selected aspects of housing law and policy, including current federal and state housing subsidies; remedies of housing consumers; impacts of market discrimination against children, racial minorities, and women; and local governmental laws influencing cost and supply, such as antispellulation and rent control legislation. Catalytic role of economic and community development in expansion of housing supply also considered. In Progress (M203A) and S/U or letter (203B) grading.

M204. Research Design and Methods for Social Policy. (4) (Same as Public Policy M218.) Lecture, three hours; outside study, nine hours. Limited to graduate students. How to become more sophisticated consumers and producers of qualitative and quantitative policy research. In first half of course, formal principles of research design; in second half, various data collection methods, including ethnography, interviewing, and survey design. Letter grading.

205. Seminar: M.A. Thesis/Comprehensive Examination. (4) Seminar, three hours. Designed for second-year M.A. students. Preparation for student thesis research and client projects. Through discussion of each other's work, participants learn how to design and implement research/client project. Administrative issues and common implementation problems. S/U grading.

M206A. Introduction to Geographic Information Systems. (4) (Same as Public Policy M224A.) Lecture, three hours; laboratory, one hour. Preparation: one graduate-level statistics course, familiarity with one packaged statistics program. Principles of Geographic Information Systems (GIS) and applied techniques of using spatial data for mapping and analysis. Topics include data quality, data manipulation, spatial analysis, and information systems. Use of mapping and spatial analysis to address planning problem. Letter grading.

M206B. Advanced Geographic Information Systems. (4) (Same as Public Policy M224B.) Lecture, four hours; laboratory, four hours. Requisite: course M206A or Public Policy M224A. Principles and skills of geographic analysis and modeling; managing, processing, and interpreting spatial data. Especially useful for students interested in environmental, demographic, suitability, and transportation-related research. Scripts (Avenue), modeling (Spatial Analyst), network analysis, and transportation modeling (TransCAD). Letter grading.

207. Applied Microeconomics for Urban Planning. (4) Lecture, three hours. Preparation: passing score on microeconomics examination given first day of class. Practical use of economics in analyzing public resource allocation problems. Topics include review of marginal analysis, difference between equity and efficiency, public goods and free rider problem, environmental pricing, public service pricing, and conflicts between individual and collective rationality. Letter grading.

208A. Colloquium in Planning Research. (4) (Formerly numbered 210C.) Lecture, one hour; discussion, two hours. Required of first-year Ph.D. students. Introduction to design and execution of planning research; exploration of subfields of planning scholarship and approaches to research on contemporary planning topics. Preparation and filing of Ph.D. program of study. Letter grading.

208B. Introduction to Research Design. (4) (Formerly numbered 208.) Seminar, three hours. Required in first or second year of Ph.D. program. Identification of planning problems, formulation of research questions, review of literature and identification of gaps, development of researchable hypotheses, understanding of strengths and weaknesses of qualitative and quantitative methodologies, understanding of

threats to validity, review of critiques of traditional methods and of alternative approaches to scholarship. Letter grading.

208C. Advanced Research Design. (4) Seminar, three hours. Required of Ph.D. students. Development of dissertation proposals for Ph.D. students who have passed their field examinations but have not yet advanced to candidacy. S/U or letter grading.

209. Special Topics in Planning Theory. (4) Lecture, three hours. Topics in planning theory selected by faculty members. May be repeated for credit. S/U or letter grading.

211. Law and Quality of Urban Life. (4) Lecture, three hours. Introduction to law as urban system, directed primarily toward those interested in intersection of law and policy: broad array of urban issues examined, as is law's role as partial cause and cure of urban problems. Examination of law as changing process rather than collection of principles, so that students develop facility to interact with law and lawyers in positive and forceful manner. S/U or letter grading.

212. International/Comparative Planning Workshop. (4) Seminar, three hours; field trips, five to 10 days. Topics of planning and policy in various international or domestic sites. Topics may include urban design, urban development, urban governance, land use, environmental issues, transportation, infrastructure planning, housing development, community development, and/or physical planning. May be repeated for credit. S/U or letter grading.

M215. Spatial Statistics. (4) (Same as Geography M272 and Statistics M222.) Lecture, three hours. Designed for graduate students. Survey of modern methods used in analysis of spatial data. Implementation of various techniques using real data sets from diverse fields, including neuroimaging, geography, seismology, demography, and environmental sciences. S/U or letter grading.

217A-217B. Comprehensive Planning Project. (4-4) Seminar, three hours. Designed for second-year students. Comprehensive project brings together students of varying backgrounds and interests in joint solution of urban planning problem. Each project spans two terms. Successful completion of project meets requirements of Comprehensive Examination Plan A of M.A. program. S/U grading.

218. Graphics and Urban Information. (4) Lecture, two hours; studio, one hour. Presentation of basic graphic methods and tools for conceptualization, analysis, and documentation of built environment. Development of fundamental skills of graphic ideation and communication. Letter grading.

219. Special Topics in Built Environment. (4) Lecture, three hours. Topics in built environment selected by faculty members. May be repeated for credit. S/U or letter grading.

220A. Quantitative Analysis in Urban Planning I. (4) Lecture, three hours; laboratory, 90 minutes. Preparation: passing score on basic mathematics proficiency examination given first day of class. Introduction to mathematical and statistical concepts and methods with applications in urban planning. Review of basic mathematical concepts fundamental to planning methods; linear and nonlinear functions focusing on growth curves and mathematics of finance; data measurement and display; descriptive statistics and probability. Introduction to use of computer as tool in analysis of planning-related data. Letter grading.

220B. Quantitative Analysis in Urban Planning II. (4) Lecture, three hours; laboratory, 90 minutes. Requisite: course 220A or equivalent as demonstrated by passing score on mathematics proficiency examination given first day of course 220A. Introduction to concepts of statistical inference and modeling, with emphasis on urban planning applications. Topics include sampling, hypothesis testing, analysis of variance, correlation, and simple and multiple regression. Use of computer as tool in statistical analysis and modeling. Letter grading.

222A. Introduction to Planning History and Theory. (4) (Formerly numbered 222.) Lecture, three hours. Required of first-year M.A. students, typically in Fall Quarter; required of first-year Ph.D. students who have not completed comparable graduate course in planning history and theory. Exploration of planning thought and practice over time, leading authors and key issues in field of planning, traditional and insurgent histories of planning, and alternative approaches to planning for multiple and pluralistic publics. Letter grading.

222B-222C. Advanced Planning Theory and History I, II. (4-4) (Formerly numbered 210A-210B.) Lecture, three hours. Required of first-year Ph.D. students. Major ideas and theories of planning that have influenced its development from early-19th century to present. Letter grading.

223. Professional Development Seminar. (4) Seminar, 90 minutes; discussion, 90 minutes. Recommended preparation: course 222. Problems of professional practice. Development of methods that integrate theory and practice through readings and individual and collective analyses of each student's fieldwork experience. Students must be working in field setting to enroll. Job fair is held at end of Fall Quarter to place students in field settings. Students combine course 223 with one term of course 496 to meet fieldwork requirement. Letter grading.

M226A. Introduction to Computer-Aided Architectural Design, Two-Dimensional. (4) (Same as Architecture and Urban Design M226A.) Lecture, three hours; laboratory, one hour. Concepts of hardware, software, and networks; paint, draft, multimedia, DTP, and presentation programs; CAD in office environment. Letter grading.

M226B. Introduction to Computer-Aided Architectural Design, Three-Dimensional. (4) (Same as Architecture and Urban Design M226B.) Lecture, three hours; laboratory, one hour. Concepts of three-dimensional space, modeling, and virtual reality; file formats; modeling, rendering, and animation programs; video conference. Letter grading.

229. Special Topics in Planning Methods. (4) Lecture, three hours. Topics in planning methodology selected by faculty members. May be repeated for credit. S/U or letter grading.

M230. Introduction to Regional Planning. (4) (Same as Public Policy M241.) Lecture, three hours. Critical and historical survey of evolution of regional planning theory and practice, with particular emphasis on relations between regional planning and developments within Western social and political philosophy. Major concepts include regions and regionalism, territorial community, and social production of space. Letter grading.

C233. Political Economy of Urbanization. (4) Lecture, three hours. Introduction to new approaches to urban studies, basic concepts and analytical approaches of urban political economy, with major emphasis on American urban problems and restructuring of modern metropolis. Topics include historical geography of urbanization, development and transformation of urban spatial structure, suburbanization and metropolitan political fragmentation, urban fiscal crisis, and role of urban social movements. Concurrently scheduled with course C133. S/U or letter grading.

234A. Development Theory. (4) Lecture, three hours. Review of basic literature and schools of thought on development theory through analysis of impact of mercantilism, colonialism, capitalism, and socialism on various urban and rural social and economic structures in Third World. Presentation, through evaluation of theoretical writings and case studies, of complexity and diversity of developing countries. Emphasis on linkages between policy and rural and urban impacts. Gives students important background for courses 234B, M234C, and many other planning courses addressing Third World issues. Letter grading.

234B. Conservation in Inhabited Landscapes. (4) Lecture, three hours. Recommended preparation: course C265. Science and politics of modern environmentalism and questions of planning in light of transformations inherent in global change; how to address

these questions in ways that go beyond green consumerism and bifurcation of wild, ecological, and human environment. American environmentalism has become dominant model for many conservation practices. Informed by Muirist model of idea of untrammeled nature with people-less set asides for spiritual and scientific contemplation of nature, this approach used in environmental policy and as key idea in conservation and fragment biology. At opposite end is environmental planning devoted to infrastructure in hyper-human habitats (cities). Many reasons to be skeptical of both models in 21st century. Exploration of ideas pertaining to these questions. Letter grading.

M234C. Resource-Based Development. (4) (Same as Geography M229.) Discussion, three hours. Recommended preparation: course 234A. Some major issues associated with development of specific natural resources. Topics include nature of particular resource (or region associated with it), its previous management, involvement of state, corporations, and local groups, and environmental and social impact of its development. Letter grading.

235A-235B. Urbanization in Developing World I, II. (4-4) Lecture, 90 minutes; discussion, 90 minutes. Course 235A is requisite to 235B. Questions of urbanization and planning in first term; rural development in second term. Case studies from Latin America, Africa, and Asia. Lectures, student presentations, and policy debates. Letter grading.

M236A. Theories of Regional Economic Development I. (4) (Same as Public Policy M240.) Lecture, three hours; discussion, one hour. Introduction to theories of location of economic activity, trade, and other forms of contact between regions, process of regional growth and decline, reasons for different levels of economic development, relations between more and less developed regions. Letter grading.

236B. Globalization. (4) Lecture, three hours. Requisite: course M236A. Application of theories of regional economic development, location, and trade learned in course M236A to contemporary process known as globalization. Examination of nature and effects of globalization on development, employment, and social structure, along with implications for policy. Letter grading.

236C. Advanced Workshop on Regions in World Economy. (4) Lecture, three hours. Requisite: course 236B. Advanced workshop on regional development examining changes in organization of production systems, their geographies, and processes that affect regional performance in globalized environment. Letter grading.

237A. Sectoral Analysis. (4) Lecture, three hours; laboratory, one hour. Introduction to methods and procedures of sectoral investigation as applied to regions, industries, companies, and their labor forces. Current theories and conceptions of industrial structure and industrial change. Investigation of characteristics and trends of industry subsectors in Los Angeles resulting in industry profile that can serve as aid to planning and shaping economic development. Letter grading.

237B. Urban and Regional Economic Development Applications. (4) Lecture, three hours. Survey and analysis of economic development strategies in U.S. Because economic development strategies seek to modify or shape existing conditions, focus on how policies attempt to harness dynamics associated with new forms of industrialization, intensified global competition, and interrelationships among capital, labor, and state. Letter grading.

C237C. Southern California Regional Economy. (4) Lecture, three hours. Introduction to regional economy, with emphasis on Los Angeles. Key economic sectors, labor market composition, and review of conflicting portrayals depicting dynamics of region. Two all-day bus tours of key economic regions and guest lectures by regional experts included. Concurrently scheduled with course CM137. Letter grading.

239. Special Topics in Regional and International Development. (4) Seminar, three hours. Topics in urban and regional development selected by faculty members. May be repeated for credit. S/U or letter grading.

M240. Local Government. (2 to 6) (Same as Law M285.) Lecture, three hours. Analysis of structure and function of local, regional, and state government in historical and institutional context: organization, finance, intergovernmental relations, role of judiciary, public services, lawmaking, citizen participation through initiatives and referenda, and government tort liability. Letter grading.

M241. Foundations of Social Welfare Policy. (4) (Same as Public Policy M260 and Social Welfare M221A.) Lecture, three hours. Nature, roles, and history of welfare institutions in different societies; applicable social system theory of different components of welfare system; theory and research about welfare policies and organizational forms. S/U or letter grading.

242. Locational Conflict. (4) Discussion, three hours. Conceptual foundation for understanding underlying sources of locational conflict across cities and regions; exploration of examples aimed at varying types of controversial facilities and land uses in human service and environmental arenas; development of strategies for addressing, overcoming, and coping with locational conflict. Letter grading.

M243. Privatization, Regulation, and Public Finance. (4) (Same as Public Policy M293.) Lecture, three hours; outside study, nine hours. Requisite: Public Policy 201. Evaluation of economic and political determinants of trend toward privatizing public services, and equity and efficiency outcomes of this trend as expressed through new pricing, financing, and service-level policies. Exploration of new regulatory role this trend implies for state and local governments. Letter grading.

244. Urban Poverty and Planning. (4) Lecture, three hours. Examination of determinants of urban poverty, with emphasis on poverty in U.S. and on geographical dimensions of poverty and planning interventions that contribute to poverty reduction. Topics include relationship between poverty and human and social capital, demographic change, low-wage labor market, spatial concentration of poor, residential segregation, and social policy. Letter grading.

245. Urban Public Finance. (4) Lecture, three hours. Requisites: courses 207, 220A. Theory and practice of urban public finance, with emphasis on methods used to fund public infrastructure. Topics include fiscal impact analysis of real estate development, effects of taxes on land-use decisions, benefit assessments to finance neighborhood public investment, private and intergovernmental contracting as method of supplying urban public services, tax increment finance for urban redevelopment, and municipal bond market. S/U or letter grading.

M246. Poverty, Poor, and Welfare Reform. (4) (Same as Public Policy M214 and Social Welfare M290L.) Lecture, three hours. Major policy and research issues concerning poverty and social welfare policy directed toward poor in U.S. S/U or letter grading.

247. Race, Gender, Culture, and Cities. (4) Discussion, three hours. Exploration of multicultural context of contemporary U.S. cities, with focus on changing social and spatial relations of ethnic communities and their policy implications. Topics relate new diversity and gender with global restructuring, new urban economy, and policies of workplace, housing, schools, and governance. S/U or letter grading.

M248. Law and Poor. (4) (Same as Law M215, Public Policy M295, and Social Welfare M290R.) Lecture, three hours. Designed for graduate students. Study of major income-maintenance programs in U.S., with emphasis on interaction of moral attitudes toward poor and structure and implementation of law, policy, and administration. Current reform consensus and major reforms. Letter grading.

249. Special Topics in Social Policy and Analysis. (4) Lecture, three hours. Topics in social policy and analysis selected by faculty members. May be repeated for credit. S/U or letter grading.

250. Introduction to Social Policy. (4) Lecture, three hours. Analysis of demographic changes, history, needs, and ideological debates that affect development of social policy in U.S., compared with Western Europe. S/U or letter grading.

251. Planning for Multiple Publics. (4) Lecture, three hours. Exploration of planning needs of various social groups in urban settings, using existing literature and research studies to determine appropriate mechanisms of planning for multiple publics. Analysis of communities in Los Angeles metropolitan area to gain insights into practical, theoretical, and methodological problems of planning for multiple publics. Generally taken in first year. S/U or letter grading.

252. Parking, Transportation, and Land Use. (4) Lecture, three hours. Parking is key link between transportation and land use, but that link has been widely misunderstood. Transportation engineers typically assume that free parking simply is there at end of most trips, while urban planners treat parking as transportation issues that engineers must study. No profession is intellectually responsible for parking, and everyone seems to assume that someone else is doing hard thinking. Mistakes in planning for parking help to explain why planning for transportation and land use has in many ways gone slowly, subtly, incrementally wrong. Study of theory and practice of planning for parking and examination of how planning for parking in U.S. has become planning for free parking. Exploration of new ways to improve planning for parking, transportation, and land use. Letter grading.

253. Sprawl. (4) Lecture, three hours. Suburbs are not new, but metropolitan areas in U.S. and elsewhere continue to grow rapidly at their edges in ways that many consider poorly planned. Discussion of causes and impacts of sprawl and what, if anything, should be done about it. Letter grading.

M254. Transportation, Land Use, and Urban Form. (4) (Same as Public Policy M220.) Lecture, three hours. Historical evolution of urban form and transportation systems, intrametropolitan location theory, recent trends in urban form, spatial mismatch hypothesis, jobs/housing balance, transportation in strong central city and polycentric city, neotraditional town planning debate, rail transit and urban form. Letter grading.

M255. Transportation Planning. (4) (Same as Public Policy M244.) Lecture, three hours. Examination of how planners analyze, manage, and operate transportation systems. Measuring system performance, intelligent transportation systems, transportation system demand management, parking management, freight movement and facilities, public transit evaluation and management, paratransit, bicycle and pedestrian planning, transportation for elderly and disabled. Letter grading.

M256. Travel Behavior Analysis. (4) (Same as Public Policy M221.) Lecture, three hours. Requisites: courses 207 and 220B, or Public Policy 201 and 203. Descriptions of travel patterns in metropolitan areas, recent trends and projections into future, overview of travel forecasting methods, trip generation, trip distribution, mode split traffic assignment, critique of traditional travel forecasting methods and new approaches to travel behavior analysis. Letter grading.

M257. Transportation Economics, Finance, and Policy. (4) (Same as Public Policy M222.) Lecture, three hours. Overview of transportation finance and economics; concepts of efficiency and equity in transportation finance; historical evolution of highway and transit finance; current issues in highway finance; private participation in road finance, toll roads, road costs and cost allocation, truck charges, congestion pricing; current issues in transit finance; transit fare and subsidy policies, contracting and privatization of transit services. Letter grading.

M258. Transportation and Environmental Issues. (4) (Same as Public Policy M223.) Lecture, three hours. Regulatory structure linking transportation, air quality, and energy issues, chemistry of air pollution, overview of transportation-related approaches to air quality enhancement; new car tailpipe standards; vehicle inspection and maintenance issues; transportation demand management and transportation control

measures; alternative fuels and electric vehicles; corporate average fuel economy and global warming issues; growth of automobile worldwide fleet; automobile in sustainability debate. Letter grading.

259. Transportation and Economic Development. (4) Lecture, three hours. Examination of equity issues related to urban transportation, with focus on complex relationships among urban spatial structure, transportation (travel patterns and transportation investments), and economic outcomes. Role of transportation in improving economic outcomes for low-income and minority households and communities. Letter grading.

C260. Environmental Politics and Governance. (4) Lecture, three hours. Environmental planning is more than simply finding problems and fixing them. Each policy must be negotiated and implemented within multiple, complex systems of governance. Institutions and politics matter deeply. Overview of how environmental governance works in practice and how it might be improved. Concurrently scheduled with course CM160. Letter grading.

261. Land-Use Planning: Processes, Critiques, and Innovations. (4) Lecture, three hours. Understanding of techniques, processes, strategies, and dilemmas of land-use planning. Despite strong criticisms and demonstrated shortcomings, land-use control remains integral part of planning practice. How does land-use control work? How has it evolved? What are problems with traditional land-use control mechanisms? How well do innovations in land-use planning address criticisms? What is role of land-use planning in good society? S/U or letter grading.

262. Urban Environmental Problems: Water Resources. (4) (Formerly numbered 262B.) Lecture, three hours. Water is life and wealth in California, which has world's most extensive long-distance, inter-basin water transfer system. To date, water resources planning has been devoted almost exclusively to adding facilities for water delivery. But conflicts over additional developments have basically precluded further extension of this system, despite growing pressures to increase supplies. Examination of environmental impacts, geography, use of water, and consideration of resource planning. S/U or letter grading.

M264A-264B. Environmental Law. (1 to 6 each) (Formerly numbered M264.) (Same as Law M290.) Lecture, three hours. Course M264A is enforced requisite to 264B. Examination of field of environmental law through analysis of various legal issues and public policy: legal consequences of public decision-making strategies and allocation of primary responsibility for various environmental decisions. Focus on air pollution and Clean Air Act as means of illustrating policy issues underlying field. In Progress (M264A) and letter (264B) grading.

C265. Environmentalism: Past, Present, and Future. (4) Lecture, three hours; discussion, one hour. Exploration of history and origin of major environmental ideas, movements or countermovements they spawned, and new and changing nature of modern environmentalism. Introduction to early ideas of environmentalism, how rise of modern sciences reshaped environmental thought, and how this was later transformed by 19th-century ideas and rise of American conservation movements. Review of politics of American environmental thought and contemporary environmental questions as they relate to broader set of questions about nature of development, sustainability, and equity in environmental debate. Exploration of issues in broad context, including global climate change, rise of pandemics, deforestation, and environmental justice impacts of war. Concurrently scheduled with course CM165. Letter grading.

C266. Global Environment and Development: Problems and Issues. (4) Lecture, three hours; discussion, one hour. Questions of population, resource use, Third World poverty, and environment. Analysis of global economic restructuring and its connections to changing organization of production and resulting environmental impacts. Case studies from Africa, Latin America, Asia, and U.S. Concurrently scheduled with course CM166. S/U or letter grading.

M267. Environmental and Resource Economics and Policy. (4) (Same as Public Policy CM250.) Lecture, three hours. Requisites: courses 207 and 220B, or Public Policy 204 and 208. Survey of ways economics is used to define, analyze, and resolve problems of environmental management. Overview of analytical questions addressed by environmental economists that bear on public policies. Letter grading.

269. Special Topics in Environmental Analysis and Policy. (4) Lecture, three hours. Topics in environmental analysis and policy selected by faculty members. May be repeated for credit. S/U or letter grading.

M270. Homelessness: Housing and Social Service Issues. (4) (Same as Social Welfare M206A.) Lecture, 90 minutes; discussion, 90 minutes; one field trip. Review of current status of homelessness: who homeless are, what social services and housing are available, existing and proposed programs—appropriate architecture, management, and sources of funding. Outside speakers include providers of services to homeless. Letter grading.

271. Community Economic Development. (4) Lecture, three hours. Introduction to fundamentals of community economic development and neighborhood development strategies. Overview of basic approaches, important concepts, resources and language of field, and major strategies for revitalization of low-income neighborhoods. Letter grading.

M272. Real Estate Development and Finance. (4) (Same as Architecture and Urban Design M272.) Lecture, two hours; workshop, two hours; outside study, eight hours. Requisites: courses 220A, 220B. Recommended for first-year students in community development and built environment area of concentration. Introduction to real estate development process specifically geared to students in planning, architecture, and urban design. Financial decision model, market studies, designs, loan packages, development plan, and feasibility studies. Lectures and projects integrate development process with proposed design solutions that are interactively modified to meet economic feasibility tests. S/U or letter grading.

273. Site Planning. (4) Lecture, 90 minutes; laboratory, 90 minutes. Requisite: course 274. Introduction to principles of site planning for urban areas. S/U or letter grading.

274. Introduction to Physical Planning. (4) Lecture/workshop, 90 minutes; discussion, 90 minutes. Designed for students with no prior physical planning background and for first-year M.A. students in community development and built environment, design and development, and transportation policy and planning concentrations. Introductory overview of physical planning, land use, site analysis, and surveys; regulatory structures and social/community impacts. Letter grading.

M275. Community Development and Housing Policies: Roles of State, Civil Society, and Nonprofits. (4) (Same as Public Policy M243 and Social Welfare M290U.) Lecture, three hours; outside study, nine hours. Designed for graduate students. Examination of role of U.S. housing policy and role of government agencies and community organizations. Is problem housing or economic development? Should interventions be directed toward inner city housing markets or through neighborhood strategies? What lessons can be learned from experiences of other countries? Letter grading.

M276A-276B. Urban Housing and Community Development. (3 to 6 each) (Formerly numbered M276.) (Same as Law M287.) Lecture, three hours; discussion, one hour. Course M276A is enforced requisite to 276B. Examination of past 40 years of federal and state programs to stem urban decline and improve housing in U.S.; comparison and contrast of legal and policy initiatives in areas of public housing, housing segregation, mortgage subsidies, landlord/tenant law, urban renewal, and community organizing. Research paper required. In Progress (M276A) and letter (276B) grading.

277. Historic Preservation: Principles and Practices. (4) Lecture, 90 minutes; discussion, 90 minutes. Overview of preservation field, including history and theory, current legislation, tax incentives, preservation planning, landmark and district surveys and designations, adaptive reuse, citizen involvement, and social issues. S/U or letter grading.

279. Seminar: Public Space. (4) Seminar, three hours. Investigation of changes in production, consumption, design, and meaning of public space and analysis of socioeconomic, political, and cultural factors that lie behind them. Letter grading.

280. Affordable Housing Development. (4) Lecture, three hours. Requisites: discussion 220A, 220B. Overview of basic concepts and skills utilized in nonprofit development initiatives, especially by community-based organizations. Focus on nonprofit provision of subsidized housing, emphasizing way professionals broker debt and equity funding from private, governmental, and philanthropic sources. Use of client projects and negotiation exercises. S/U or letter grading.

281. Introduction to History of Built Environment in U.S. (4) Lecture, two hours; discussion, one hour. Open to advanced undergraduates with consent of instructor. Introduction to history of physical forms of urbanization in America; survey of economic, political, social, and aesthetic forces behind creation of built environments. S/U or letter grading.

282. Urban Design: Theories, Paradigms, Applications. (4) Lecture, three hours. Discussion and evaluation of philosophical bases, ideologies, and paradigms of urban design in last century; examination of how these are reflected on built environment of cities. Letter grading.

C284. Looking at Los Angeles. (4) Lecture, three hours. Introduction to history and physical form of Los Angeles, with emphasis on understanding social, economic, and political issues in development of Los Angeles. Concurrently scheduled with course C184. Letter grading.

285. Women and Community Development: Great Gender Debates. (4) Lecture, 90 minutes; discussion, 90 minutes. Relationship between planning, community development, and women, with attention to interaction of gender, race, and class/ethnicity. Examples from domestic and international developments. Alternative theories and methods to close gaps between household needs and urban policies. Preparation of written and oral critical reviews of literature and research paper. Letter grading.

M286. Management Challenges and Tools for Nonprofit Sector. (4) (Same as Public Policy M226 and Social Welfare M290V.) Lecture, three hours; outside study, nine hours. Designed for graduate students. Fundamental building blocks for successful management in nonprofit sector. Students develop management skills in strategic thinking/problem solving, project management, team building, and negotiation. Use of case studies to troubleshoot critical challenges, from finance to crisis management to marketing, that nonprofit managers typically face. Letter grading.

M287. Nonprofit Sector, State and Civil Society. (4) (Same as Public Policy M227 and Social Welfare M290S.) Lecture, three hours; outside study, nine hours. Use of political economy perspective to analyze forces that have shaped rise and characteristics of nonprofit sector and its constituent elements. Examination of social history of nonprofit sector in U.S. Exploration of legal and policy environments and distinct organizational forms. Comparative perspective between U.S. and other countries. S/U or letter grading.

M288. Leadership, Development, and Governance of Nonprofit Organizations. (4) (Same as Public Policy M228 and Social Welfare M241E.) Lecture, three hours; outside study, nine hours. Designed for graduate students. Various patterns of community action for attaining social welfare objectives; research and field experience directed toward study of social problems within context of community planning; emerging patterns of physical, economic, and social planning within framework of social change theory. Letter grading.

M290. Strategic Planning for Public and Nonprofit Organizations. (4) (Same as Public Policy M247 and Social Welfare M241F.) Lecture, three hours; outside study, nine hours. Designed for graduate students. Technical processes of problem solving regarding substantive social welfare problems at community level. This form of community practice fills niche between professional and knowledge and skill set possessed by agency and program administrators on one hand and by policy analysts and policymakers on other. Letter grading.

M291. Introduction to Sustainable Architecture and Community Planning. (4) (Same as Architecture and Urban Design CM247A.) Lecture, three hours. Relationship of built environment to natural environment through whole systems approach, with focus on sustainable design of buildings and planning of communities. Emphasis on energy efficiency, renewable energy, and appropriate use of resources, including materials, water, and land. Letter grading.

M292. Elements of Urban Design. (4) (Same as Architecture and Urban Design M271.) Lecture, three hours. Introduction of basic knowledge of elements and methods of urban design. Multidisciplinary approach leading to understanding of political, socioeconomic, and technological framework of urban systems and its dynamic interrelations. S/U or letter grading.

M293. Politics, Ideology, and Design. (4) (Same as Architecture and Urban Design M293.) Lecture, three hours. Exploration of cultural and political context of architecture and planning work. Examination of theory and practice from variety of perspectives applied to set of varied physical environments and to set of current spatialized concepts. Consideration of theoretical propositions that are shaping present urban and architectural debate and concrete case studies where politics and ideology shape design process. Letter grading.

294. Housing in Developing Countries: Policy Objectives and Options. (4) Lecture, three hours. Examination of relevance of public policies and their intended and unintended effects on housing demand and supply in developing countries. How definition of housing problems, and scope of solutions, has changed over time. Critical assessment of some key solutions that have been tried in past, their advantages, shortcomings, and resultant trade-offs, and likely directions for future housing policy. Letter grading.

298. Special Topics in Emerging Planning Issues. (2 to 4) Discussion, two to three hours. Topics in newly emerging planning issues such as role of cutting edge technology, innovative policies, and experimental programs. May be repeated for credit. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar. to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

M404. Joint Planning/Architecture Studio. (4) (Same as Architecture and Urban Design M404.) Lecture, one hour; discussion, one hour; studio, four hours. Opportunity to work on joint planning/architecture project for client. Outside speakers; field trips. Examples of past projects include Third Street Housing, Santa Monica; New American House for nontraditional households; Pico-Aliso Housing, Boyle Heights; working with resident leaders at Los Angeles City public housing developments. S/U or letter grading.

M470. Improving Worker Health: Social Movements, Policy Debates, and Public Health. (4) (Same as Community Health Sciences CM470 and Environmental Health Sciences M471.) Lecture, three hours; fieldwork, two hours. Examination of intersection between work, health, and environment, analysis of social causes of health disparities, investigation of historical trends and social movements, interpretation of current policy debates, and development of innovative interventions. S/U or letter grading.

496. Field Projects. (4) Tutorial, four hours. May not be repeated for credit. S/U grading.

501. Cooperative Program. (2 to 8) Tutorial, to be arranged. Preparation: consent of UCLA graduate adviser and graduate dean, and host campus instructor, department chair, and graduate dean. Used to record enrollment of UCLA students in courses taken under cooperative arrangements with USC. S/U grading.

596. M.A. Research in Planning. (4) Tutorial, three hours. May be repeated once for credit. S/U or letter grading.

597. Preparation for M.A. Comprehensive Examination or Ph.D. Qualifying Examinations. (4 to 12) Tutorial, four hours. May be repeated for credit by Ph.D. students. S/U grading.

598. Preparation for M.A. Thesis in Urban Planning. (4) Tutorial, four hours. May be repeated but may be applied toward degree only once. S/U grading.

599. Ph.D. Dissertation Research in Planning. (2 to 12) Tutorial, to be arranged. May be repeated for credit. S/U grading.

UROLOGY

David Geffen School of Medicine

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Chair

Jean B. deKernion, M.D. (*Fran and Ray Stark Foundation Professor of Urology*), Chair

Scope and Objectives

The fundamental goal of the Department of Urology is to teach medical students the general principles of diagnosis and management in diseases of the genitourinary tract. Urology encompasses a wide scope of human illness, including conditions that are congenital and acquired, pediatric and adult, male and female, malignant and benign. The department functions to acquaint students with the skills necessary to manage these conditions in the initial stages and over the long term.

Instruction spans all four years of the undergraduate medical school curriculum but is concentrated during the clinical rotations. Students spend one week on the urology service during the third year and may return for an additional four-week elective rotation during the fourth year. The clinical experience includes time spent in the faculty and resident clinics, on ward rounds, and in didactic conferences that cover general urology, urological subspecialties, uropathology, and uroradiology. Urology teaching settings include the Reagan UCLA, Harbor-UCLA, Olive View-UCLA, Santa Monica UCLA, and West Los Angeles VA Medical Centers.

For further details on the Department of Urology and a listing of the courses offered, see <http://urology.ucla.edu>.

Urology

Upper Division Course

199. Directed Research in Urology. (2 to 8) Tutorial, two hours. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper required. May be repeated for credit. Individual contract required. P/NP or letter grading.

WOMEN'S STUDIES

College of Letters and Science

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Christine A. Littleton, J.D., *Chair*

Professors

Carole H. Browner, Ph.D., *in Residence*
Ellen C. DuBois, Ph.D.
Alicia Gaspar De Alba, Ph.D.
Sondra Hale, Ph.D.
Sandra Harding, Ph.D.
Douglas M. Kellner, Ph.D.
Françoise Lionnet, Ph.D.
Christine A. Littleton, J.D.
Susan K. McClary, Ph.D.
Carole Pateman, D.Phil.
Lucia Re, Ph.D., *Dottore in Lettere*
Jennifer A. Sharpe, Ph.D.

Associate Professors

Jessica R. Cattelino, Ph.D.
Grace Kyungwon Hong, Ph.D.
Purnima Mankekar, Ph.D.
Elizabeth A. Marchant, Ph.D.
Kathryn Norberg, Ph.D.
Abigail C. Saguy, Ph.D.
Sharon J. Traweek, Ph.D.
Juliet A. Williams, Ph.D.

Assistant Professors

Maylei S. Blackwell, Ph.D.
Michelle Erai, Ph.D.
Lieba B. Faier, Ph.D.
Aisha K. Finch, Ph.D.
Mishuana R. Goeman, Ph.D.

Scope and Objectives

The Department of Women's Studies provides interdisciplinary academic programs that span departments, disciplines, and ideologies. The undergraduate program offers a Bachelor of Arts degree and a minor; the graduate program offers Master of Arts and Ph.D. degrees.

The programs provide students the opportunity to study the full range of human experience and arrangements of social organization from the perspectives of those whose participation has been traditionally distorted, omitted, neglected, or denied—women in their racial, class, sexual, national, and cultural diversity. Students develop critical reasoning and analytical skills, research and communication skills, a deep appreciation for complexities of power and asymmetries in gender relations across time, class, and cultures, and conceptual tools

for social change. Emphasis on multidisciplinary, multiethnic, and transnational approaches assures a broader exposure to the humanities and social sciences than is commonly available within disciplinary confines. A background in women's studies offers unique contextual validation for today's gender controversies and prepares students for a wide range of career and life choices.

The faculty members who teach women's studies courses come from various College of Letters and Science departments, area studies centers, and professional schools. Many professionals within and outside the University contribute their time, expertise, and enthusiasm. A governance committee composed of the chair, faculty members, and graduate and undergraduate student representatives sets program policies and curricula.

The department works closely with undergraduate and graduate student associations to promote student activism and community service among its majors, minors, and graduate students. It also assists other student groups with extracurricular programming on feminist issues. Research in women's studies is promoted in cooperation with the Center for the Study of Women.

Undergraduate Study

Women's Studies B.A.

The major in Women's Studies may be taken alone or in conjunction with another Letters and Science major. In the case of a double major, no more than five courses may be applied toward both majors.

Admission

To be admitted to the major, students must have completed Women's Studies 10, be in good standing, and formally register with the department. They are encouraged to declare their major as early as possible and to discuss their proposed course of study with the chair or undergraduate adviser.

Students are encouraged to draw on the University's diverse resources in creating their program of study. They may pursue traditional and/or innovative subjects in fields ranging from the humanities and fine arts to the social and life sciences. In addition to courses on the women's studies approved list, students may petition to have diverse courses accepted, including courses outside the College of Letters and Science, independent studies, or field study courses.

Each course applied toward the major must be taken for a letter grade, and students must have a grade-point average of 2.0 or better in women's studies courses to receive credit for completing the program. Courses in which they receive grades of C– or lower may not be applied toward the core requirements in the major.

Preparation for the Major

Required: Women's Studies 10. Students must also complete departmental lower division req-

uisites, as applicable, for upper division women's studies courses in the disciplines.

Transfer Students

Transfer applicants to the Women's Studies major with 90 or more units must complete the following introductory courses prior to admission to UCLA: one multidisciplinary feminist perspectives on women and society course and departmental lower division requisite courses.

Refer to the *UCLA Transfer Admission Guide* at http://www.admissions.ucla.edu/prospect/adm_tr.htm for up-to-date information regarding transfer selection for admission.

The Major

The major is designed to (1) impart core concepts in theory and critical analysis, research design, and methods, (2) provide exposure to a range of feminist scholarship across disciplines, and (3) enable students to acquire a depth of knowledge within one or two disciplinary or topical fields of inquiry. To achieve this goal, the major is divided into three categories.

Required: At least 13 upper division courses (minimum of 4 units each) as follows:

1. Three core courses, including (a) one feminist theory course from Women's Studies 110A or 110B or M110C, (b) course 130 or one course on the study of American ethnic minority women from the approved list of women's studies credit courses issued each term by the department, and (c) course 187
2. A distribution of at least four courses, each from a different department or discipline, selected from the approved list of women's studies courses
3. Six additional concentration courses from one or two of the disciplines in which the core and distribution courses have been taken. Students may petition for interdisciplinary or topical concentrations such as feminist theory, women of color, women's health, or lesbian studies. If two fields are selected, the ratio of the six courses may be divided 3-3 or 4-2

One upper division tutorial (minimum of 4 units) selected from course 195, 197, or 199 may be applied toward the concentration requirement for the major. This limit does not apply to Women's Studies 198A or 198B.

Honors Program

The honors program is open to advanced junior and senior Women's Studies majors with a 3.6 grade-point average in women's studies courses and a minimum 3.4 overall GPA who have no outstanding Incomplete grades, and to majors who demonstrate ability to do honors work by submitting a paper to the department chair for approval. Students wishing to undertake honors in the major are encouraged to complete Women's Studies 187 by Spring Quarter of the junior year or Fall Quarter of the senior year.

To qualify for honors at graduation, students must successfully complete course 187 and two successive terms of honors research (courses 198A, 198B) with their faculty sponsor and receive a grade of B+ or better on their research paper/project. Course 198A may be applied toward the concentration requirement; course 198B is in addition to the minimum required concentration courses. Further information is available from the undergraduate counselor in the department office.

Women's Studies Minor

The Women's Studies minor augments and enriches study in a traditional field. Students participating in this program are required to complete both a departmental major and the Women's Studies minor.

To enter the minor, students must have an overall grade-point average of 2.0 or better and file a petition in 2225 Rolfe Hall. They are encouraged to declare the minor as early as possible and to discuss their proposed course of study with the chair or undergraduate adviser.

Required Lower Division Course (4 units): Women's Studies 10.

Required Upper Division Courses (28 units): (1) One feminist theory course from Women's Studies 110A or 110B or M110C, (2) 120 or 187 or an equivalent senior research seminar approved in advance, and (3) five upper division elective courses (minimum of 4 units each) from the approved list of women's studies courses issued each term by the department. At least three elective courses must be taken in departments other than the major department. No more than 4 units of courses 195 through 199 may be applied.

Each minor course must be taken for a letter grade, and students must have an overall grade-point average of 2.0 or better. Courses in which students receive grades of C– or lower may not be applied toward the core requirements in the minor. Successful completion of the minor is indicated on the transcript and diploma.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Women's Studies Department offers Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.) degrees in Women's Studies.

Women's Studies

Lower Division Course

10. Introduction to Women's Studies: Feminist Perspectives on Women and Society. (5) Lecture, three hours; discussion, two hours. Introduction to study of women and men in society, covering comparative issues of social, political, and economic position in the workplace, family, cultural institutions; historical basis of women's subordination; the female experience; the male experience; relations between women and men; intersections of ethnicity, class, and gender; violence against women; cultural images of women and men; social roles of women and men and movements for social change. P/NP or letter grading.

Upper Division Courses

M101A. Lesbian and Gay Literature before Stonewall. (5) (Same as English M101A and Lesbian, Gay, Bisexual, and Transgender Studies M101A.) Lecture, four hours. Requisite: English Composition 3 or 3H. Survey of lesbian and gay literature in English from earlier periods through 1960s. Works by such authors as Walt Whitman, Oscar Wilde, Radclyffe Hall, E.M. Forster, Willa Cather, Virginia Woolf, James Baldwin, Christopher Isherwood, William S. Burroughs, John Rechy, Audre Lorde, and Edward Albee. P/NP or letter grading.

M101B. Lesbian and Gay Literature after Stonewall. (5) (Same as English M101B and Lesbian, Gay, Bisexual, and Transgender Studies M101B.) Lecture, four hours. Requisite: English Composition 3 or 3H. Survey of lesbian and gay literature in English since 1969, year of Stonewall Riots in New York City, commonly recognized as beginning of modern lesbian and gay culture. Works by such authors as Adrienne Rich, Jane Rule, Maureen Duffy, Brigid Brophy, Larry Kramer, Bertha Harris, Edmund White, Rita Mae Brown, Alan Hollinghurst, and Emma Donahue. P/NP or letter grading.

M101C. Special Topics in Lesbian and Gay Literature. (5) (Same as English M101C and Lesbian, Gay, Bisexual, and Transgender Studies M101C.) Lecture, four hours. Enforced prerequisite: English Composition 3 or 3H. Variable specialized studies course in lesbian and gay literature. Topics focus on particular problem or issue in terms of its relationship to lesbian and gay culture and writing. May be repeated for credit. P/NP or letter grading.

M104C. Diversity in Aging: Roles of Gender and Ethnicity. (4) (Same as Gerontology M104C and Social Welfare M104C.) Lecture, four hours. Exploration of complexity of variables related to diversity of the aging population and variability in aging process. Examination of gender and ethnicity within context of both physical and social aging, in a multidisciplinary perspective utilizing faculty from a variety of fields to address issues of diversity. Letter grading.

105. Topics in Women and Medicine. (4) Lecture/discussion, three hours. Examination of medical conditions of women in context of issues that impact women's health, healthcare, and healthcare providers. Discussion of basic health concepts and self-care; consideration of a women's health speciality and ways to deliver healthcare to women. Exploration of roles and lifestyles of female physicians. P/NP or letter grading.

M106. Imaginary Women. (4) (Same as Honors Coliseum M106.) Seminar, four hours. Designed for juniors/seniors. Study of four female cultural archetypes—absconding wife/mother, infanticide mother, intellectual woman, and warrior woman—as they appear in their classical and modern manifestations in European and American cultures. P/NP or letter grading.

M107A. American Women Writers. (5) (Same as English M107A.) Lecture, four hours; discussion, one hour (when scheduled). Enforced prerequisite: English Composition 3 or 3H. Survey of literary works by American women writers, with emphasis on roles of

women, portrayal of nature and society, and evolution of forms and techniques in writing by American women. P/NP or letter grading.

M107B. British Women Writers. (5) (Same as English M107B.) Lecture, four hours. Enforced prerequisite: English Composition 3 or 3H. Survey of literary works by British women writers, with emphasis on roles of women, portrayal of nature and society, and evolution of forms and techniques in writing by British women. P/NP or letter grading.

M107C. Special Topics in Women and Literature. (5) (Same as English M107C.) Lecture, four hours. Enforced prerequisite: English Composition 3 or 3H. Variable specialized studies course in women and literature, with emphasis on a period, genre, particular theme, or nonnational literary grouping. P/NP or letter grading.

M108. Love and Sex in German Literary Tradition. (4) (Same as German M107.) Lecture, three hours. Taught in English. Study of major literary works that address issues of idealized desire, emotional/sexual boundaries, and development of sexual identity. Letter grading.

108S. Violence against Women. (4) (Formerly numbered M108S.) Lecture, three hours. Requisite: course 10. Factual information and theoretical analyses regarding various forms of violence against women and girls in their homes, workplaces, and communities through critical examination of social structures and social science research. Letter grading.

M109. Women in Jazz. (4) (Same as Afro-American Studies M109 and Ethnomusicology M109.) Lecture, four hours; discussion, one hour. Sociocultural history of women in jazz and allied musical traditions from 1880s to present. Survey of women vocalists, instrumentalists, composers/arrangers, and producers and their impact on development of jazz. P/NP or letter grading.

110A. Feminist Theories in Social Sciences. (4) Lecture/discussion, three hours. Requisite: course 10. Multidisciplinary explorations of theorists' attempts to describe, explain, and critique social institutions, considering impact of race, ethnicity, class, etc. Emphasis on relation of theories to change in law, work, politics, education, economics, family, religion, sexuality, etc. Applications of theories to research questions and methodologies. P/NP or letter grading.

110B. Feminist Theories in the Humanities. (4) Lecture/discussion, three hours. Requisite: course 10. Examination of theoretical positions on gender and women in study of literature and the arts. Analysis of ways in which women and sexuality have been represented in cultural production, considering impact of race, ethnicity, class, etc. Applications of theories to research questions and methodologies. P/NP or letter grading.

M110C. Philosophical Analysis of Issues in Feminist Theory. (4) (Same as Philosophy M187.) Lecture, three hours. Requisite for Women's Studies majors: course 10; for other students: one philosophy course. Examination in depth of different theoretical positions on gender and women as they have been applied to study of philosophy. Emphasis on theoretical contributions made by new scholarship on women in philosophy. Critical study of concepts and principles that arise in discussion of women's rights and liberation. Philosophical approach to feminist theories. May be repeated for credit with consent of instructor. Letter grading.

M111. Women and Film. (6) (Same as Film and Television M111.) Lecture, eight hours; discussion, one hour. Historical issues and critical approaches to women and cinema that may include authorship, stardom, female genres, and images of women in Hollywood cinema, alternative cinema, and independent cinema from silent era to the present. Letter grading.

112. Special Topics in Women and the Arts. (4) Lecture, three hours. Requisite: course 10. Selected topics relating feminist theories to creation of art by women, with consideration of cultural contexts in which they work. Approach to be comparative, cross-cultural, and interdisciplinary. Consideration of artistic practice by women in relation to issues of power, rep-

resentation, and access. May be repeated twice, except for credit toward Women's Studies major. P/NP or letter grading.

M114. Introduction to Lesbian, Gay, Bisexual, and Transgender Studies. (5) (Same as Lesbian, Gay, Bisexual, and Transgender Studies M114.) Lecture, three hours; discussion, one hour. Introduction to history, politics, culture, and scientific study of lesbians, gay men, bisexuals, and transgendered people; examination of sexuality and gender as categories for investigation; interdisciplinary theories and research on minority sexualities and genders. P/NP or letter grading.

M115. Topics in Study of Sexual and Gender Orientation. (4) (Same as Lesbian, Gay, Bisexual, and Transgender Studies M115.) Lecture/discussion, three hours. Requisite: course 10 or M114. Studies in arts, humanities, social sciences, and/or life sciences on aspects of sexual orientation, gender identity, and lesbian, gay, and/or bisexual issues; variable topics may include cultural representations, historical and political change, life and health experiences, and queer or transgender theories; multiethnic and cross-cultural emphases. May be repeated for credit. Letter grading.

M116. Sexuality and the City: Queer Los Angeles. (4) (Same as Lesbian, Gay, Bisexual, and Transgender Studies M116.) Lecture, three hours. Requisite: course M114. Investigation of history, culture, and political economy of lesbian, gay, bisexual, and transgender Los Angeles. Letter grading.

M117. Women and Politics. (4) (Same as Political Science M107.) Lecture, three or four hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Introduction to rapidly growing body of empirical and theoretical scholarship on women and politics in both national and international contexts. Topics may include women's movement in the U.S. and globally; women's electoral participation; representation of women in Congress and in legislatures worldwide; women as heads of government and state; feminist critiques of political science; women and human rights; ERA; struggle for suffrage; mothers as political actors; women and the military; women, development, and globalization. P/NP or letter grading.

M118. Queering American History. (4) (Same as Lesbian, Gay, Bisexual, and Transgender Studies M118.) Lecture, four hours. History of sexual and gender minorities in the U.S. Topics include changing norms, romantic friendships, medical discourse, liberation politics, post-Stonewall culture, AIDS, transgender movement, queer theory and politics. P/NP or letter grading.

M119. Tristan, Isolde, and History of Heterosexuality. (4) (Same as German M105.) Lecture, three hours. Taught in English. German, French, and English versions of Tristan and Isolde story from Middle Ages to 20th century. Particular attention to relation between representation of heterosexual love in each text and contemporaneous ideas about human sexuality. P/NP or letter grading.

120. Internship in Women's Studies. (4) Seminar, three hours; internship, eight hours. Preparation: at least two upper division women's studies courses. Requisites: courses 10, 110A or 110B. Field studies course combining seminar with field placement. Practical experience in working on women's issues and connecting these experiences to methodological and theoretical themes explored in course 110A or 110B. Letter grading.

M121. Topics in Gender and Disabilities. (4) (Same as Disability Studies M121.) Lecture, three and one half hours. Limited to juniors/seniors. Ways in which issues of disability are affected by gender, with particular attention to various roles, positions, and concerns of women with disabilities. Approach is intersectional, exploring how social categories of class, race, ethnicity, religion, age, sexuality, nationality, and citizenship affect and are affected by gender and disability. Topics may include law (civil rights, nondiscrimination), representation (arts, literature), education, public policy, health. May be repeated for credit with topic and instructor change. P/NP or letter grading.

M124. Psychology of Language and Gender. (4) (Same as Communication Studies M124.) Lecture, four hours. Examination of current topics at intersection of gender and language. Topics include sex differentiation in language cross-culturally; sex bias in lexicon and usage; sex differences in lexicon, syntax, phonology, and nonverbal behavior; development of sex-differentiated language in children; women's and men's language in various racial/ethnic/class/sexual preference groups; and conversational interaction. Letter grading.

125. Women and Healthcare in the U.S. (4) Lecture/discussion, three hours. Requisite: course 10. Examination in depth of various ways women provide healthcare in both paid and unpaid capacities and of political, economic, and social factors affecting women as recipients of healthcare. P/NP or letter grading.

M127. Women in Russian Literature. (4) (Same as Russian M127.) Lecture, three hours. Designed for juniors/seniors. Lectures and readings in English. Introduction to "alternative tradition" of women's writings in Russia and the Soviet Union. Emphasis on images of women expressed in this tradition as compared with those found in works of contemporary male writers. P/NP or letter grading.

M128. Roots of Patriarchy: Ancient Goddesses and Heroines. (4) (Same as Honors Colloquium M118.) Lecture, three hours. Examination of ancient goddesses and heroines—European, Neolithic, Near Eastern, Celtic, Scandinavian, Balto-Slavic, Indo-Iranian, and Greco-Roman—using translations of ancient texts, archaeological evidence, and feminist methodology in order to discover implications of ancient patriarchy on modern society. P/NP or letter grading.

130. Women of Color in the U.S. (4) Lecture/discussion, three hours. Requisite: course 10. Exploration of experiences of African American, Asian American, Chicana, and Native American women in order to assess intersections of race, ethnicity, class, and gender. Contemporary and/or historical and/or theoretical perspectives on racism and its relation to feminism as defined by women of color. P/NP or letter grading.

M132A. Chicana Feminism. (4) (Same as Chicana and Chicano Studies M110.) Lecture, three hours. Requisite: course 10 or Chicana and Chicano Studies 10A. Examination of theories and practices of women who identify as "Chicana feminist." Analysis of writings of Chicanas who do not identify as feminist but whose practices attend to gender inequities faced by Chicanas both within Chicana/Chicano community and dominant society. Attention to Anglo-European and Third World women. P/NP or letter grading.

M132B. Contemporary Issues among Chicanas. (4) (Same as Chicana and Chicano Studies M154.) Lecture, two and one-half hours. Requisite: course 10. Overview of conditions facing Chicanas in U.S., including issues on family, immigration, reproduction, employment conditions. Comparative analysis with other Latinas. P/NP or letter grading.

M133. Chicana Lesbian Literature. (4) (Same as Chicana and Chicano Studies M133 and Lesbian, Gay, Bisexual, and Transgender Studies M133.) Lecture, three hours. Exploration of intersection of radical First and Third World feminist politics, lesbian sexuality and its relationship to Chicana identity, representation of lesbianism in Chicana literature, meaning of *familia* in Chicana lesbian lives, and impact of Chicana lesbian theory on Chicana/Chicano studies. Letter grading.

M133A-M133B. History of Women in Europe. (4-4) (Same as History M133A-M133B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. History of social, political, and cultural roles of women in Western Europe from early Middle Ages to present. P/NP or letter grading.

M133A. 800 to 1715; M133B. 1715 to Present.
M133C. History of Prostitution. (4) (Same as History M133C.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. History of prostitution from ancient times to present. Topics include toleration in medieval Europe, impact of syphilis, birth of courtesan, regulation in 19th-century

Europe, white slavery scare, and contemporary global sex trade. Readings include novels, primary sources, and testimony by sex workers. P/NP or letter grading.

134. Gender, Science, and Theory. (4) Lecture, three hours. Requisite: course 10. Examination of differing theoretical perspectives on relation between ideologies of gender and conceptualization and practice of science and medicine. Study of relations among gender, race, class, and sexual orientation and production and legitimization of scientific knowledge. Applications of theoretical critiques to research design, practice, and interpretation. Letter grading.

M135C. Bilingual Writing Workshop. (4) (Same as Chicana and Chicano Studies M135.) Seminar, four hours. Writing sample required on first day of class; access to course Web page mandatory; need not be bilingual to enroll. Technical instruction, analysis, and theoretical discussion of bilingual creative expression, with focus on specific genre (i.e., autobiography, poetry, fiction). Emphasis on memory, identity, gender, and sexuality. Central theme of bilingualism as politics and aesthetics. Peer critique of weekly writing assignments. Letter grading.

M136. Music and Gender. (5) (Same as Music History M136.) Lecture, four hours; discussion, one hour. Analysis of gender ideologies in several musical cultures; representations of gender, body, and sexuality by both male and female musicians; contributions of women to Western art and popular musics; methods in feminist and gay/lesbian theory and criticism. Letter grading.

M137E. Work Behavior of Women and Men. (4) (Same as Psychology M137E.) Lecture, two and one-half hours. Requisite: course 10 or Psychology 10. Designed for seniors. Examination of work behavior of women and men. Topics include antecedents of career choice, job findings, leadership, performance evaluation, discrimination and evaluation bias, job satisfaction, and interdependence of work and family roles. P/NP or letter grading.

138. Gender and Popular Culture. (5) Lecture, three hours; screenings, two hours. Limited to juniors/seniors. Conceptual tools and critical skills necessary to rigorously interrogate gender politics of popular culture in the U.S. context. Consideration of theories of popular culture and exploration of distinctive power and ideological force exerted by popular culture in American public life. Examination of specific representations of male and female bodies to understand visual vocabulary of gender in popular culture, as well as relationship between visual stereotypes and regimes of power. Consideration of debates concerning transformative potential of pop culture and exploration of capacity and limits of popular culture as agent of social change. Letter grading.

139. Women and Art in Contemporary U.S. (4) Lecture/discussion, three hours. Requisite: course 10. Exploration of some significant cultural issues of contemporary American women's art movement. Representation, resistance, and critical intervention in relation to gender, race, and class. Emphasis on visual and performance arts as these reflect various perspectives of feminism. Letter grading.

M140. Women's Studies in French Literature. (4) (Same as French M140.) Lecture, three hours. Exploration of a selected aspect of the situation of women in French literature as author, character, symbol, etc. P/NP or letter grading.

M141. Women, Health, and Aging: Policy Issues. (4) (Same as Gerontology M141 and Health Services CM141.) Lecture, three hours; discussion, one hour. Preparation: two upper division social sciences courses, two upper division biological sciences courses. Social and economic context of older women's aging, major physical and psychological changes older women experience, delivery of health services to this population, and policies that respond to their health needs. Letter grading.

CM143. Women Healers, Ritual, and Transformation. (4) (Same as World Arts and Cultures CM140.) Lecture, four hours. Designed for juniors/seniors. Examination of role of women healers, historically and within contemporary culture-specific contexts. Explo-

ration of psychological functions served by rites of passage and healing rituals and of role of arts in healing troubled communities. Concurrently scheduled with course CM243. P/NP or letter grading.

M144. Women's Movement in Latin America. (4) (Same as Chicana and Chicano Studies M144 and Labor and Workplace Studies M144.) Lecture, four hours. Course on women's movements and feminism in Latin America and Caribbean to examine diverse social movements and locations from which women have launched political and gender struggles. Discussion of forms of feminism and women's consciousness that have emerged out of indigenous rights movements, environmental struggles, labor movements, Christian-based communities, peasant and rural organizing, and new social movements that are concerned with race, sexuality, feminism, and human rights. Through comparative study of women's movements in diversity of political systems as well as national and transnational arenas, students gain understanding of historical contexts and political conditions that give rise to women's resistance, as well as major debates in field of study. P/NP or letter grading.

M146. Feminist Geography. (4) (Same as Geography M146.) Lecture, three hours; discussion, one hour. Critical engagement of gender as concept of geographic inquiry. Gender as spatial process, analysis of feminist geographic theory and methods, landscapes of gender, challenges of representing gender. Spaces of femininity, masculinity, and sexuality. P/NP or letter grading.

M147A. Psychology of Lesbian Experience. (4) (Same as Lesbian, Gay, Bisexual, and Transgender Studies M147A and Psychology M147A.) Lecture, two hours; discussion, one hour. Prerequisite: course 10 or Lesbian, Gay, Bisexual, and Transgender Studies M114 or Psychology 10. Designed for juniors/seniors. Review of research and theory in psychology and women's studies to examine various aspects of lesbian experience, impact of heterosexism/stigma, gender role socialization, minority status of women and lesbians, identity development within a multicultural society, changes in psychological theories about lesbians in sociohistorical context. P/NP or letter grading.

M147B. History of Women in Colonial British America and Early U.S., 1600 to 1860. (4) (Same as History M147C.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Introduction to major themes in history of early American women from initial confrontation of English and American Indian cultures in early 17th century to rise of women's rights movement in mid-19th century. P/NP or letter grading.

M147C. Transnational Women's Organizing in Americas. (4) (Same as Chicana and Chicano Studies M147.) Lecture, four hours. Feminist theories of transnational organizing. Examination of gender and race as central to processes of globalization and essential to economic and political struggles encompassed in transnational power relations. Exploration of how questions of race and gender influence global economic policies and impact local actors and their communities. In time when people, capital, cultures, and technologies cross national borders with growing frequency, discussion of process of accelerated globalization has been linked to feminization of labor and migration, environmental degradation, questions of diaspora, sexuality, and cultural displacement, as well as growing global militarization. Problems and issues created by globalization and cultural, social, and political responses envisioned by transnational organizing. P/NP or letter grading.

M147D. History of Women in U.S., 1860 to 1980. (4) (Same as History M147D.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Introduction to major themes in history of American women from abolition of slavery and Civil War to rise and consequences of second-wave feminism. P/NP or letter grading.

M148. Women in Higher Education. (4) (Same as Education M148.) Seminar, three hours. Designed for juniors/seniors. Overview of issues related to experience of women in higher education. Topics include

curricular transformation, feminist pedagogy, gender equity, women faculty members, and intersection of gender and race. Letter grading.

M149. Media: Gender, Race, Class, and Sexuality. (5) (Same as Communication Studies M149 and Labor and Workplace Studies M149.) Lecture, four hours; activity, one hour. Limited to junior/senior Communication Studies and Women's Studies majors and Labor and Workplace Studies minors. Examination of manner in which media culture induces people to perceive various dominant and dominated and/or colonized groups of people. Ways in which women, gay, lesbian, bisexual, transgendered, racial, and ethnic marginalized peoples, class relations, and other subaltern or subordinated groups are presented and often misrepresented in media. Investigation and employment of practical applications of communications and feminist theories for understanding ideological nature of stereotyping and politics of representation through use of media, guest presentations, lectures, class discussions, and readings. Introduction to theory and practice of cultural studies. Letter grading.

M151. Marriage, Family, and Kinship. (4) (Same as Anthropology M151.) Lecture, three hours. Prerequisite: Anthropology 9. Examination of understandings of kinship in cross-cultural perspective and impact of kinship on interpersonal relationships, gender roles, and sociocultural systems. Readings from popular materials and formal ethnographic accounts. P/NP or letter grading.

M153. Media and Aggression against Women. (4) (Same as Communication Studies M153.) Lecture, four hours. Social scientific study of intersection between mass media and men's aggression against women. Particular consideration of sexual aggression, pornography, and characteristics of aggressive men. Analysis of interaction between "nature and nurture." Letter grading.

M154P. Gender Systems: North America. (4) (Same as Anthropology M154P.) Lecture, three hours. Recommended preparation: prior women's studies or anthropology courses. Designed for junior/senior social sciences majors. Comparative study of women's lives and gender systems in North American cultures from anthropological perspective. Critical review of relevant theoretical and practical issues using ethnography, case study, and presentations. P/NP or letter grading.

M154Q. Gender Systems: Global. (4) (Same as Anthropology M154Q.) Lecture, three hours. Recommended preparation: prior women's studies or anthropology courses. Designed for junior/senior social sciences majors. Comparative study of gender systems globally from anthropological perspective. Outline of material conditions of women's lives in world—gender division of labor, relationship of gender to state, and colonialism and resistance movements. P/NP or letter grading.

M155. Women's Voices: Their Critique of Anthropology of Japan. (4) (Same as Anthropology M155.) Lecture, three hours. Preparation: introductory socio-cultural anthropology course. The anthropology of Japan has long viewed Japan as a homogeneous whole. Restoration of diversity and contradiction in it by listening to voices of Japanese women in various historical contexts. P/NP or letter grading.

M155Q. Women and Social Movements. (4) (Same as Anthropology M155Q.) Lecture/discussion, three hours. Recommended preparation: prior women's studies or anthropology courses. Comparative studies of social movements (e.g., nationalist, socialist, liberal/reform), beginning with Russia and China and including Cuba, Algeria, Guinea-Bissau, Mozambique, Nicaragua, and Iran. Analysis of women's participation in social transformations and the centrality of gender interests. P/NP or letter grading.

156A. History of Women in the U.S.: Rebellious Women of 20th Century. (4) Lecture, three hours. Limited to juniors/seniors. Introduction to major and minor figures and movements for social change in the U.S., including themes from politics, sports, civil rebellions, and body. Examination of dramatic challenges to gender roles over course of the 20th century

through actions of rebellious women who led way for myriad of changes in women's lives. Offered in summer only. P/NP or letter grading.

M157. Chicana Historiography. (4) (Same as Chicana and Chicano Studies M158 and History M151D.) Lecture, four hours. Examination of Chicana historiography, looking closely at how practice of writing of history has placed Chicanas into particular narratives. Using Chicana feminist approaches to study of history, revisiting of specific historical periods and moments such as Spanish Conquest, Mexican Period, American Conquest, Mexican Revolution, and Chicano Movement to excavate untold stories about women's participation in and contribution to making of Chicana and Chicano history. P/NP or letter grading.

M158. Women in Italian Culture. (4) (Same as Italian M158.) Lecture, three hours; discussion, one hour. Examination of role of women in Italian society through history, politics, literature, film, and art. Italian majors required to read texts in Italian. P/NP or letter grading.

M159. Pornography and Evolution. (4) (Same as Communication Studies M159.) Lecture, three hours. Discussion of theories and research on why pornography exists and its effects. Use of topic to illustrate value of evolutionary theory to social sciences generally. Letter grading.

M162. Sociology of Gender. (4) (Same as Sociology M162.) Lecture, three hours; discussion, one hour. Prerequisite: course 10 or Sociology 1. Examination of processes by which gender is socially constructed. Topics include distinction between biological sex and sociological gender, causes and consequences of gender inequality, and recent changes in gender relations in modern industrial societies. P/NP or letter grading.

M163. Gender and Work. (4) (Same as Sociology M163.) Lecture, three hours. Prerequisite: course 10 or Sociology 1. Exploration of relationship of gender to work, concentrating on the U.S. experience but also including some comparative material. Particular emphasis on analysis of causes and consequences of job segregation by gender and of wage inequality. P/NP or letter grading.

M164. Politics of Reproduction. (4) (Same as Sociology M164.) Lecture, three hours; discussion, one hour. Title refers to intersection between politics and life cycle. Topics include social construction of gender and population, reproductive issues, politicization of mothers, motherhood, and mothering, surrogacy, and new reproductive technologies. Letter grading.

M164A. Women, Violence, Globalization: India, Philippines, Singapore, Vietnam. (4) (Same as Asian American Studies M164.) Lecture, four hours. Study of various forms of violence done on women not only in and of themselves but in light of larger systems of oppression, with focus on Filipino, Vietnamese, Singaporean, and South Asian cultures. Letter grading.

M165. Psychology of Gender. (4) (Same as Psychology M165.) Lecture, three hours. Consideration of psychological literature relevant to understanding contemporary sex differences. Topics include sex-role development and role conflict, physiological and personality differences between men and women, sex differences in intellectual abilities and achievement, and impact of gender on social interaction. P/NP or letter grading.

M166. Women in Socialist and Post-Socialist States. (4) (Same as Sociology M166.) Lecture, three hours; discussion, one hour. Exploration of diverse aspects of women's lives in socialist and post-socialist states. Although transition from socialism occurs differently, gender differences are everywhere central to democratization and marketization. Discussion of ways in which state policies affect women. Letter grading.

M167. Contested Sexualities. (4) (Same as Lesbian, Gay, Bisexual, and Transgender Studies M167.) Lecture, three hours; discussion, one hour. Sociological perspectives on formation, control, and resistance of lesbian, gay, bisexual, and transgendered people. Variable topics include identity and community; age, class, gender, and racial diversity; and analysis of contemporary issues affecting contested sexualities. Letter grading.

168. Feminist Economics in Globalizing World.

(4) Lecture, four hours. Preparation: satisfaction of Letters and Science Writing II requirement. Requisite: course 10. Designed for juniors/seniors. Overview of field of feminist economics, with emphasis on development experiences in globalizing world economy. Overview of gender inequalities such as gender division of labor in paid and unpaid work, patterns of employment and unemployment, and wage gaps between men and women in different world economy regions; feminist critiques of economics and of theoretical debates within gender and development field on topics such as structural adjustment, feminization of labor force, and poverty; examination of efforts and proposals by governments, international policy-making institutions, and civil society organizations to make economic policies and structures gender-equitable. P/NP or letter grading.

CM170. Alternate Traditions: In Search of Female Voices in Contemporary Literature.

(5) (Formerly numbered M170.) (Same as Comparative Literature CM170.) Seminar, three hours. Designed for upper division literature majors. Investigation of narrative texts by contemporary French, German, English, American, Spanish American, African, and Asian women writers from cross-cultural perspective. Common themes, problems, and techniques. Concurrently scheduled with course CM270. P/NP or letter grading.

M170C. History of Women in China, A.D. 1000 to Present. (4) (Same as History M170C.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Topics include women and family, women in Confucian ideology, women in literati culture, feminist movement, and women and communist revolution. P/NP or letter grading.

171A. Women, Gender, and Law: Jurisprudence of Sexual Equality. (4) Lecture, four hours. Requisite: course 10 or Political Science 10 or Philosophy 6 or 9. Recommended: course 110A or 110B or M110C. Exploration of models of equality described and/or advocated by legal theorists primarily in the U.S.—equality of opportunity, equality of outcome, equality of respect, etc.—using specific problems of women (e.g., sexual harassment, pregnancy leave policy, access to safe and effective reproductive control technologies) for purposes of comparison and critique. Specific focus may vary by instructor (e.g., consideration of sexual equality theories to issues of gender equity, legal status of women in countries outside the U.S. or from perspectives of international human rights). May be repeated for credit with topic or instructor change. P/NP or letter grading.

M172. Afro-American Woman in U.S. (4) (Same as Afro-American Studies M172 and Psychology M172.) Lecture, two and one-half hours. Designed for juniors/seniors. Impact of social, psychological, political, and economic forces which impact on interpersonal relationships of Afro-American women as members of large society and as members of their biological and ethnic group. P/NP or letter grading.

M173B. Women in 20th-Century Japan. (4) (Same as History M173B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Japanese women in Japanese and world history through state documents, autobiographical voices, contemporary television, and other varying historical sources, including topics such as women and new political order (1900 to 1930), women, war, and empire (1930 to 1945), and women in consumer society (1980s to 1990s). P/NP or letter grading.

M174. Sociology of the Family. (4) (Same as Sociology M174.) Lecture, three hours; discussion, one hour. Theory and research dealing with modern family, its structure, and functions, including historical changes, variant family patterns, family as an institution, and influence of contemporary society on the family. P/NP or letter grading.

M175. Women and Cities. (4) (Same as Urban Planning M175.) Lecture, three hours. Limited to juniors/seniors. Examination of relationship between women and cities: (1) how cities have affected women's opportunities for economic and social equality, (2) women's contributions to development of U.S. cities, and

(3) contemporary strategies and efforts to create urban environments that reflect women's needs and interests. P/NP or letter grading.

CM178. Critical Media Literacy and Politics of Gender: Theory and Production. (4) (Same as Education CM178.) Seminar, three hours. Corequisite: course CM178L. Use of range of pedagogical approaches to theory and practice of critical media literacy that necessarily involves understanding of new technologies and media forms. Study of both theory and production techniques to inform student analysis of media and critical media literacy projects. Concurrently scheduled with course CM278. Letter grading.

CM178L. Critical Media Literacy and Politics of Gender: Laboratory. (2) (Same as Education CM178L.) Laboratory, two hours. Corequisite: course CM178. Hands-on production experience as integral component of course CM178. Concurrently scheduled with course CM278L. Letter grading.

M180B. Historical Perspectives on Gender and Science. (4) (Same as History M180B.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Historical cases illustrating how gender enters practices and concepts of science. Topics include gendered conceptions of nature, persona of man of science, role of women in scientific revolution, scientific investigations of women and feminine. P/NP or letter grading.

185. Special Topics in Women's Studies. (4) Lecture, three hours. Preparation: one prior women's studies course. Designed for juniors/seniors. Specialized or advanced study in one area within women's studies. May be repeated for credit with topic and/or instructor change. P/NP or letter grading.

M186. Voices of Women in Nordic Literature. (4) (Same as Scandinavian CM144A.) Seminar, three hours. Requisite: Scandinavian 5 or 15 or 25. Knowledge of Scandinavian languages not required for nonmajors. Readings and discussion of writings by Scandinavian women writers analyzed in historical, theoretical, sociological, critical, and comparative contexts. P/NP or letter grading.

M186A. Global Feminism, 1850 to the Present. (4) (Same as History M187A.) Lecture, three hours; discussion, one hour (when scheduled). Designed for juniors/seniors. Introduction to movements for women's rights (educational, political, economic, sexual, and reproductive) around world and over one and one-half centuries. P/NP or letter grading.

187. Senior Research Seminar: Women's Studies. (4) Seminar, three hours. Requisites: courses 10, and 110A or 110B or M110C. Designed for advanced junior/senior Women's Studies majors or minors. In-depth study of major theme in feminist research. Themes vary by instructor and term. Students pursue independent research related to course theme, with guidance from instructor, then share and critique other student works in progress. Letter grading.

195. Community or Corporate Internships in Women's Studies. (2 or 4) Tutorial, eight hours. Requisites: course 110A or 110B or M110C, or two upper division women's studies courses not in 189 to 199 series. Limited to juniors/seniors. Internship in supervised setting in community agency, organization, or business approved by program. Content of student work must apply gender analysis or be focused on some aspect of women's studies. Students meet on regular basis with instructor, provide periodic reports on their experience on-site, and submit final report. Must be taken for 4 letter-graded units to be applied toward Women's Studies major or minor. May be repeated for maximum of 8 units. Individual contract with supervising faculty member required. P/NP or letter grading.

197. Individual Studies in Women's Studies. (4) Tutorial, four hours. Preparation: at least two upper division women's studies courses. Requisite: course 110A or 110B or M110C. Limited to juniors/seniors. Individual intensive study, with scheduled meetings to be arranged between faculty member and student. Content may include themes in feminist discourse, application of feminist theoretical perspectives to dis-

ciplinary field, or emerging areas of inquiry. Assigned reading and tangible evidence of mastery of subject matter required. May be repeated for credit. Individual contract required. Letter grading.

198A-198B. Honors Research in Women's Studies. (4-4) Tutorial, four hours. Limited to junior/senior women's studies honors program students. Two-term sequence to research and write honors thesis under direct supervision of faculty sponsor and in consultation with faculty cosponsor. Individual contract required. **198A.** Requisite: course 187. In Progress grading. **198B.** Requisite: course 198A. Letter grading.

199. Directed Research in Women's Studies. (2 or 4) Tutorial, to be arranged. Preparation: at least two upper division women's studies courses, minimum 3.0 grade-point average. Requisite: course 110A or 110B or M110C. Limited to junior/senior Women's Studies majors and minors. Supervised individual research or investigation under guidance of faculty mentor on specific topic within women's studies. Culminating paper or project required. May be repeated for credit. Individual contract required. Letter grading.

Graduate Courses

201. Feminist Knowledge Production: Early/Modern. (4) Lecture/discussion, three hours. Examination of early and modernist feminist theories and epistemologies in context of global flows of people, ideas, and goods and in diverse socioeconomic settings. Evaluation of varied forms of feminist knowledge production and multicultural critiques of theories of modernity. Letter grading.

202. Multicultural Feminist Knowledge Production: Contemporary. (4) Lecture/discussion, three hours. Examination of contemporary multicultural and transnational feminist knowledge production within contexts of globalization, neocolonialism, diaspora, exile, and dislocation. Concentration on feminist debates on modernism, postmodernism, cultural and critical race studies, postcolonial theories, sexuality, and queer studies. Letter grading.

203. Research Methods in Studies of Women and Gender. (4) Lecture/discussion, three hours. Preparation: prior or concurrent enrollment in graduate research methods course in discipline or focus area, one or more undergraduate or graduate courses in women's studies. Requisites: courses 201, 202. Topics in advanced critique of sexist research methods, models of inclusion of women in research and theory, nonsexist research methods from conception through interpretation, what constitutes "feminist" research, inclusiveness and attention to diversity issues, appropriate frameworks in comparative research. Supplements disciplinary offerings on research methods. Letter grading.

204. Current Research in Women's Studies. (1) Seminar, to be arranged. Designed for graduate students in any discipline conducting research on women/gender-related issues. Attendance and participation in Feminist Research Seminar sponsored by Center for Study of Women; presentations in interdisciplinary women's studies research and theory, with their significance and methodology discussed and critiqued in depth. May be repeated for credit. S/U grading.

205. Gender and Politics of Information. (4) Seminar, three hours. Designed for graduate students. Examination of gendered dimensions embedded in information technologies. Critical feminist assessment of information as resource and commodity; impact of Internet and information technologies on women and men and gendered distinctions between who builds and who "owns" information technology resources; race, class, gender relations in cyberspace and electronic communications. Letter grading.

210. Topics in Women and Public Policy. (4) Lecture, four hours. Designed for graduate women's studies students. Introduction to background, decision-making processes, and current debates over public policy directly affecting women in one or more major spheres of public life (e.g., work, family, political system, healthcare, legal regulation). Topics may focus

on public health, political science, medicine, workplace studies, and social welfare. May be repeated for credit with topic or instructor change. Letter grading.

215. Topics in Study of Sexuality and Gender. (4) Seminar, three to four hours. Designed for graduate students. Multidisciplinary studies on aspects of sexual orientation, gender identity, queer and transgender theory, interdisciplinary research on minority sexualities, and social construction/deconstruction of gender. May be repeated for credit with topic or instructor change. Letter grading.

220. Cultural Studies in Gender, Race, and Sexuality. (4) Seminar, three hours. Designed for graduate students. In-depth study of representations of gender and sexuality in literature and performance culture, with special attention to race. Topics include flow of artistic cultural production across national borders, theorizing femiqueer as diasporic or multicultural formation. Letter grading.

M238. Feminist Theory. (4) (Same as Sociology M238.) Seminar, three hours. Designed for graduate students. Analysis of current American feminist theory relevant to sociologists. Exploration of critiques of second wave feminism by working class feminists and/or feminists of color, feminist scholars from other countries, and recent "antifeminist" feminists. Discussion of directions for future feminist sociology. Letter grading.

CM243. Women Healers, Ritual, and Transformation. (4) (Same as World Arts and Cultures CM240.) Lecture, four hours. Designed for graduate students. Examination of role of women healers, historically and within contemporary culture-specific contexts. Exploration of psychological functions served by rites of passage and healing rituals and of role of arts in healing troubled communities. Concurrently scheduled with course CM143. S/U or letter grading.

M252. Selected Topics in Sociology of Gender. (4) (Same as Sociology M252.) Lecture, two hours; discussion, two hours. Designed for graduate students. Seminar on selected topics in sociology of gender. May be repeated for credit. Letter grading.

M253A. Seminar: Current Problems in Comparative Education. (4) (Same as Education M253A.) Seminar, four hours. Examination of some of most influential critical theorists, including Marx, Nietzsche, Freud, Marcuse, Foucault, Fanon, and de Beauvoir and their contributions to critique of contemporary education, society, and politics. S/U or letter grading.

M255. Cross-Cultural Perspectives on Gender. (4) (Same as Sociology M255.) Seminar, three hours. How does gender manifest itself in lives of different groups of women in U.S. and abroad? Are universal analytical categories or united feminist movements possible or is gender too different cross-culturally? S/U or letter grading.

M259A-M259B. History of Women. (4-4) (Same as History M259A-M259B.) Seminar, three hours. Course M259A is requisite to M259B. History of women's social and political issues seen in U.S. and comparative context. In Progress (M259A) and letter (M259B) grading.

M261. Gender and Music in Cross-Cultural Perspective. (4) (Same as Ethnomusicology M261.) Seminar, three hours. Designed to foster in-depth understanding of gender in study of music as culture. Topics range from ethnography of gender and sexuality, (de)codification of messages of resistance, and gender representation to gendered politics via musical production. S/U or letter grading.

M263P. Gender Systems. (4) (Same as Anthropology M263P.) Seminar, three hours. Current theoretical developments in understanding gender systems cross-culturally, with emphasis on relationship between systems of gender, economy, ideational systems, and social inequality. Selection of ethnographic cases from recent literature. S/U or letter grading.

M266. Feminist Theory and Social Sciences Research. (4) (Same as Education M266.) Lecture, four hours. Examination of how diverse feminist social theories of last quarter century have both challenged and strengthened conventional social sciences theories and their methodologies. Introduction especially to

feminist standpoint theory, distinctive critical theory methodology now widely used in social sciences. Letter grading.

CM270. Alternate Traditions: In Search of Female Voices in Contemporary Literature. (5) (Same as Comparative Literature CM270.) Seminar, four hours. Designed for graduate students. Investigation of narrative texts by contemporary French, German, English, American, Spanish American, African, and Asian women writers from cross-cultural perspective. Common themes, problems, and techniques. Concurrently scheduled with course CM170. S/U or letter grading.

CM278. Critical Media Literacy and Politics of Gender: Theory and Production. (4) (Same as Education CM278.) Seminar, three hours. Corequisite: course CM278L. Use of range of pedagogical approaches to theory and practice of critical media literacy that necessarily involves understanding of new technologies and media forms. Study of both theory and production techniques to inform student analysis of media and critical media literacy projects. Concurrently scheduled with course CM178. Letter grading.

CM278L. Critical Media Literacy and Politics of Gender: Laboratory. (2) (Same as Education CM278L.) Laboratory, two hours. Corequisite: course CM278. Hands-on production experience as integral component of course CM278. Concurrently scheduled with course CM178L. Letter grading.

285. Special Topics in Women's Studies. (4) Lecture/discussion, four hours. Designed for graduate students. Selected topics or special problems. In-depth study of aspects of feminist theory or research methods or gender analysis within disciplinary studies in social sciences, humanities, health sciences, arts, or professional programs. May be repeated for credit with topic or instructor change. Letter grading.

296. Doctoral Roundtable. (2) Research group meeting, two hours. Preparation: satisfactory completion of Ph.D. program first year. Requisites: at least two courses from 201, 202, 203, 210. Limited to program Ph.D. students. Interactive seminar with focus on disciplinary and interdisciplinary issues, feminist scholarship, research presentation, and professional development. May be repeated for credit. S/U grading.

375. Teaching Apprentice Practicum. (1 to 4) Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Requisite or corequisite: course 495. Teaching apprenticeship under active guidance and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

495. Feminist Pedagogy. (2) Seminar, two hours. Preparation: appointment as teaching assistant in department. Introduction to feminist methods of teaching, with emphasis on reciprocity and dialogue and de-emphasis on hierarchy. Required of students while serving as teaching assistants (first time only) in undergraduate women's studies courses. May be repeated for credit. S/U grading.

596. Directed Individual Study or Research. (2 to 12) Tutorial, to be arranged. Requisites: courses 201, 202, 203. Directed individual research and study in area related to women's studies/gender studies, arranged individually by student with instructor. May be repeated for credit. S/U or letter grading.

597. Preparation for M.A. Comprehensive Examination or Ph.D. Qualifying Examinations. (2 to 12) Tutorial, eight hours. Limited to graduate women's studies students. Reading and preparation for written M.A. comprehensive examination or Ph.D. qualifying field examinations. May be repeated for a maximum of 12 units. S/U grading.

598. Research for M.A. Thesis. (2 to 12) Tutorial, to be arranged. Requisites: courses 201, 202, 203. Research for and writing of M.A. thesis under direction of thesis committee chair. May be repeated for credit. S/U grading.

599. Research for Ph.D. Dissertation. (2 to 12) Tutorial, to be arranged. Preparation: advancement to Ph.D. candidacy. Research for and writing of Ph.D. dissertation under direction of dissertation committee chair. May be repeated for credit. S/U grading.

WORLD ARTS AND CULTURES

School of the Arts and Architecture

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Janna L. Shaddock-Hernandez, Ed.D.
Kishan P. Shah, B.A.
Jason C. Tsou
Hesen Weiren, M.F.A.

Adjunct Professors

Lynn M. Dally, M.A.
Simone Forti, B.F.A.

Adjunct Assistant Professor

Viji Prakash

Visiting Assistant Professor

Rennie Harris

Scope and Objectives

Guided by an interdisciplinary faculty of artists and arts scholars, the academic programs in the Department of World Arts and Cultures (WAC) have three overlapping missions: (1) the formulation of critical theoretical and intercultural insights into artistic creativity and the politics of representation, (2) the creation, theorization, and interdisciplinary study of dance and other body-based modes of performance, and (3) mutually beneficial engagement with the diverse cultural and artistic communities of Los Angeles.

The department is an interdisciplinary unit that finds its *raison d'être* in a set of intellectual and artistic problems rather than an established academic discipline. By looking to world arts, the department seeks to decenter Western perspectives by recognizing that visual and performance art and other ways of knowing are situated locally and often made and distributed globally. Faculty members, who have international standing and are engaged in both creative artistic work and research, are interlocutors in dialogues about the frictions and flows implicated by the department's name. As such, WAC is defined by a dynamic interdisciplinary approach that encourages intercultural literacies and repertoires, including and transcending geography, ethnicity, class, and other distinctions of identity.

The undergraduate program offers concentrations in dance and in world arts and cultures. See the Undergraduate Study section for further information.

The graduate program offers Master of Arts and Ph.D. degrees in Culture and Performance and a Master of Fine Arts in Dance, with an emphasis on choreography. Culture and performance students research communities, cultures, and transnational movements through heritage and globalization studies, multivocal ethnographies, dance and theories of corporeality and embodiment, visual and material culture, critical museum and curatorial studies, documentary practice and Internet interventions, as well as arts activism and interdisciplinary art-making. The M.F.A. in Dance offers opportunities to engage multiple movement practices as students work on pioneering research in the form of new choreography. Students focus on media, dance history, and theories of the body as supplements to their work as choreographers. Two centers within the department, the Art I Global Health Center and the Center for Intercultural Performance, present further opportunities for learning and practice.

While operating with considerable independence, the two graduate degree streams are unified by the department's common concern for aesthetic production, corporeality and performance, the dynamics of tradition, and culture-building in contemporary societies. Connections are forged between critical theory and artistic practices, and attention is given to the changing social roles and responsibilities of artists, practitioners, and scholars of the arts in the U.S. and worldwide.

Undergraduates and graduates have excelled in fields including technology and the arts, videography, documentary work, public service, education, theatrical/events production, performing arts, urban planning, law, environmental activism, public health, and medicine. They have made careers in community nonprofits and activist groups, government arts agencies, museums, and arts foundations. Potential careers for M.A., Ph.D., and M.F.A. graduates also include positions in research universities and colleges, and M.F.A. graduates are active as choreographers/performers in their own companies or with other professional organizations.

Undergraduate Study

World Arts and Cultures B.A.

The World Arts and Cultures major leads to the Bachelor of Arts degree and is designed to offer choice and flexibility while maintaining balance and rigor. At the outset, students select one of two concentrations: dance or world arts and cultures. All students take a set of core courses designed to explore a wide range of artistic practices in cultural context. In addition, it is recommended that students selecting the dance concentration study movement techniques of their choice four to five days a week for the first two years of the program, while those concentrating in world arts and cultures must select 8 units of arts practice electives in movement, music, theater, film, design, or visual art—either within or outside the department.

In the junior year, students enroll in World Arts and Cultures 185 where they propose the final path of study for the senior year. World arts and cultures concentration students propose a senior honors project, or equivalent coursework, with faculty approval. Dance concentration students propose their senior-year course plan and have the option to propose a senior honors project (10 additional units). Students are guided in their proposals by the instructor and in consultation with their faculty mentors.

The *dance concentration* is grounded in contemporary choreography and offers courses in a range of idioms from throughout the world, including special emphasis on dance composition. Opportunities for performance, production, videography, and movement studies are augmented by courses in the study of the body and of bodily identity from historical and cultural perspectives, dance theory, and dance in the public sphere, including arts pedagogy and civic engagement. Multimedia forms of expression integrating music, theater, visual arts, film, and other technologies along with hybrid forms of cultural expression utilizing both emerging and classically based vocabularies are encouraged.

The *world arts and cultures concentration* emphasizes cultural studies through visual and performance arts, arts activism, and the dynamics of creativity in global perspective. Courses combine theory and practice and are grounded in diverse cultural artistic expressions, with topics including art as moral action, ethnography as colonialism, arts-based AIDS interruptions,

body politics, documentary practice, theories of performance, curating cultures, space, and place, and indigenous spiritual traditions.

For both concentrations, students are encouraged to complement the required set of core and elective departmental courses with others offered across campus, such as courses from ethnic and area studies programs, and may organize their course of study in relation to particular interests or professional goals (e.g., international comparative studies, intercultural studies, education, area specializations such as Africa, Asia, or Latin America, minority discourse, gender or women's studies).

Students who wish to confer with the departmental student affairs officer regarding program planning and major requirements should contact the undergraduate counselor at (310) 825-8537.

Admission

New students are admitted to the major for Fall Quarter only. All applicants are reviewed individually, based on submission of a written research paper, transcripts, two letters of recommendation, and two personal essays. These supplementary materials are requested from students in mid-December, after the general UC application is received and processed, and are due back in the department in January. For freshman applicants, college placement test scores are also considered. Students interested in the dance concentration must participate in a late January/early February audition. Specifics about the audition are included in the e-mail requesting the above-mentioned supplementary materials.

Current UCLA students who petition to change their major are required to meet with the student affairs officer prior to application. They are advised to take selected departmental courses before and during the term in which they apply to the program. They must have a minimum 2.0 overall grade-point average and no more than 90 quarter units at the time of application. Students may apply at the beginning of Spring Quarter for admission into the program the following Fall Quarter. Those interested in the dance concentration are expected to participate in an audition. All students are interviewed as part of the application process.

Dance Concentration

The dance concentration consists of 103 units of coursework.

Preparation for the Major

Required: World Arts and Cultures 1, 2, 16, 45, 47, 67A, 67B, 70, 85.

The Major

Required: (1) World Arts and Cultures 185; (2) 4 units in *production practices* from courses 169, 171, 172, 174A, 174B, or other department courses with faculty approval; (3) 9 units in *topics in dance studies*, including course 101 and 4 units from C145 through C168 or 199 or from outside the department with faculty approval; (4) *creative inquiry/research*—courses 117A, 117B; (5) *civic engagement*—course

100A or 100B or 103 and 4 units from 100A, 100B, 103, 144, 166, 167, 177SL, or from outside the department with faculty approval; (6) 4 additional elective units from courses 116, 117C, C180, or upper division courses listed above, or outside the department with faculty approval. Students also have the option to propose a senior honors project through courses 186A and 186B.

Movement Arts/Dance Practices—Required: A total of 36 units from World Arts and Cultures 5 through 15, 55 through 65, 78, C106A through C115, and 178, including a minimum of 6 units of advanced upper division coursework in any genre. Twenty units must be at the intermediate/advanced levels in two different genres; one genre must be modern/postmodern for a minimum of 6 units from course 65 or C115. No more than 8 units of course 78 or 178 may be applied toward the total 36-unit requirement.

World Arts and Cultures Concentration

The world arts and cultures concentration consists of 89 units of coursework.

Preparation for the Major

Required: World Arts and Cultures 1, 2, 20, 21, 70, 85; 8 units in world arts practice electives selected from courses 5 through 16 or 55 through 59 (4 units must be taken within the department; 4 units may be from outside the department); and one course from 22, 24, 33, or 47.

The Major

Required: (1) World Arts and Cultures 100A or 100B, 101, 185, 186A, and 186B, or equivalent coursework with faculty approval; (2) 8 units in *locating cultures* in which students select a geographical/cultural focus from either inside or outside the department with faculty approval; (3) 4 units in *arts/activism/community engagement* selected from course 103, M125A, M125B, M125C, 144, 166, 167, C168, or other courses with faculty approval; and (4) 20 units from one of three commitment areas—*studies in culture and performance*, *interdisciplinary/intercultural creative work*, or *integrated studies*—selected from approved course lists (see department counselor), in which all units must be taken within the department.

Senior Honors Project

World Arts and Cultures 186A and 186B lead to a senior honors project that has three possible areas of focus—performance, applied research, or studies in culture and performance: (1) the performance project is a creative project leading to the production and public performance of original or traditional work; (2) the applied research focus implies an application of knowledge in a hands-on situation and includes projects in and with the community or campus; and (3) the culture and performance focus involves students in independent ethnographic research in some aspect of the arts. This project is optional for the dance concentration. Students in the world arts and cultures concentration may choose to complete courses 186A and 186B, or two equivalent courses with faculty approval. All students wishing to com-

plete a senior honors project must submit a proposal and receive faculty approval.

Graduate Study

Official, specific degree requirements are detailed in *Program Requirements for UCLA Graduate Degrees*, available at the Graduate Division website, <http://www.gdnet.ucla.edu/gasaa/library/pgmrqintro.htm>. In many cases, more detailed guidelines may be outlined in announcements, other publications, and websites of the schools, departments, and programs.

Graduate Degrees

The Department of World Arts and Cultures offers Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.) degrees in Culture and Performance and a Master of Fine Arts (M.F.A.) degree in Dance.

World Arts and Cultures

Lower Division Courses

- 1. Introduction to World Arts and Cultures. (5)** Lecture, three hours; discussion, one hour. Survey of concepts and theories involved in intercultural, interdisciplinary study of art, aesthetics, and performance. Examination of interactions among various modes of creative expression, role of style in daily life, performative representation of cultural identity and difference, and interaction of diverse artistic traditions. Letter grading.
- 2. Lower Division Seminar. (5)** (Formerly numbered 2A.) Seminar, four hours; outside study, 11 hours. Variable topics seminar with focus on scholarly and practice-based research in arts. In-depth investigations of topics ranging from body in cultural context, interdisciplinary art-making, visual cultures, oral genres, material culture, study of culture and performance, including individual and cultural identity through arts, creation of dance/theatrical performance, theoretical and analytical approaches to arts practice, arts activism, and other topics pertaining to broad fields of culture, performance, and dance. Research inquiry methods may include readings, assigned written analysis, supervised fieldwork, individual and collaborative assignments, and/or practice-oriented processes. Substantial culminating project integrating theoretical and practical components of selected seminar topic required. May be repeated for credit. Letter grading.
- 5. Beginning Global and Transcultural Forms. (2)** Studio, three hours. Beginning-level study of world arts practices crossing national and cultural boundaries. Variable topics, such as body music, cross-cultural textile creation, or mural painting, in cultural and historical context. May be repeated for credit without limitation. P/NP or letter grading.
- 6. Beginning World Arts Practices in Sub-Saharan Africa and Diaspora. (2)** Studio, three hours. Beginning-level study of world arts practices originating from sub-Saharan Africa and extending to cultures of African diaspora, including Brazil and Afro-Caribbean. Variable topics, such as dance of Guinea, Mali, and Senegal or Afro-Caribbean masking traditions, in cultural and historical context. May be repeated for credit without limitation. P/NP or letter grading.
- 7. Beginning World Arts Practices in Middle East/North Africa and Diaspora. (2)** Studio, three hours. Beginning-level study of world arts practices originating from Middle East and North Africa. Variable topics, such as belly dancing or Israeli folk dance, in cultural and historical context. May be repeated for credit without limitation. P/NP or letter grading.

8. Beginning World Arts Practices in Latin America and Diaspora. (2) Studio, three hours. Beginning-level study of world arts practices originating from Latin America, including cultures of South and Central America. Variable topics, such as Argentine tango and Mexican folkloric dances, in cultural and historical context. May be repeated for credit without limitation. P/NP or letter grading.

9. Beginning World Arts Practices in North America and Diaspora. (2) Studio, three hours. Beginning-level study of world arts practices originating from North America, including U.S., Canada, and Native America. Variable topics, such as Native American dance, jazz, and jazz-tap, in cultural and historical context. May be repeated for credit without limitation. P/NP or letter grading.

10. Beginning World Arts Practices in East Asia and Diaspora. (2) Studio, three hours. Beginning-level study of world arts practices originating from East Asia, including China, Korea, and Japan. Variable topics, such as movement and music techniques of Beijing Opera, Korean shamanic movement practices, and Kabuki theater, in cultural and historical context. May be repeated for credit without limitation. P/NP or letter grading.

11. Beginning World Arts Practices in South Asia and Diaspora. (2) Studio, three hours. Beginning-level study of world arts practices originating from South Asia and extending to cultures of South Asian diasporas, including communities in England and West Africa. Variable topics, such as Bharata Natyam (classical dance of India), bhangra (diasporic social dance), and hatha yoga, in cultural and historical context. May be repeated for credit without limitation. P/NP or letter grading.

12. Beginning World Arts Practices in Southeast Asia and Diaspora. (2) Studio, three hours. Beginning-level study of world arts practices originating from Southeast Asia. Variable topics, such as Cambodian court dance, Indonesian kechak, or Balinese legong, in cultural and historical context. May be repeated for credit without limitation. P/NP or letter grading.

13. Beginning World Arts Practices in Europe and Diaspora. (2) Studio, three hours. Beginning-level study of world arts practices originating from Europe and extending to cultures of European diaspora, including U.S. Variable topics, such as flamenco, Balkan folk dances, and classical ballet, in cultural and historical context. May be repeated for credit without limitation. P/NP or letter grading.

15. Beginning Modern/Postmodern Dance. (2) Laboratory, four hours. Study of dance technique. Critical viewing, reading, and discussion of modern/postmodern dance artists' works. May be repeated twice for credit. P/NP or letter grading.

16. Beginning Improvisation in Dance. (2) Lecture, one hour; laboratory, three hours. Introduction to creative exploration in movement through improvisational and compositional exercises that access and develop imagination, find relationship between imagination and dance making, and enrich movement vocabulary. May be repeated once for credit. P/NP or letter grading.

20. Culture: Introduction. (5) Lecture, four hours. Introduction to key concepts and major theoretical and methodological debates that characterize field of cultural studies, including discussion of notions of culture, popular culture, subculture, youth culture, hegemony, gender, race, class, and national identity. Letter grading.

21. Introduction to Field-Based Research. (5) Lecture, three hours. Introduction to methods, techniques, and issues in conducting field-based research, including nature, uses, and limitations of major data-gathering procedures, ethical concerns, sampling, checks and controls, teamwork, interventions, and results as not only tangible and impersonal outcomes of inquiry but also personal and tangible. Through readings, discussion, and hands-on exercises, students learn how to plan fieldwork projects and write proposals, prepare consent forms and deal with ethical issues, observe behavior, construct questionnaires, interview, use audiovisual documentation, and manage and present data. P/NP or letter grading.

22. Introduction to American Folklore Studies. (5) Lecture, four hours; discussion, one hour; outside study, 10 hours. Cultural/historical survey of role of folklore in development of American civilization and of influence of American experience in shaping folklore in American society; attention also to representative areas of inquiry and analytical procedures. P/NP or letter grading.

M23. Introduction to American Indian Studies. (5) (Same as American Indian Studies M10.) Lecture, three hours; discussion, one hour; activity, one hour. Survey of selected Native North American cultures from pre-Western contact to contemporary period, with particular emphasis on early cultural diversity and diverse patterns of political, linguistic, social, legal, and cultural change in postcontact period. P/NP or letter grading.

24. World Arts, Local Lives. (5) Lecture, three hours; discussion, one hour. Use of Fowler Museum's long-term exhibition entitled "Intersections: World Arts/Local Lives" as object of study to examine many insights that arts can offer into social, political, and religious experience. Drawing heavily on cultures of Africa, Asia, Pacific, and indigenous Americas, both ancient and contemporary, consideration of degree to which notions of aesthetics and efficacy are intertwined and interdependent in art forms made to intervene in people's lives in active, instrumental ways. Use of specific case studies to illustrate and interrogate theoretical paradigms. P/NP or letter grading.

33. Tribal Worldviews. (5) Lecture, three hours; discussion, one hour. Introduction to study of indigenous worldviews as they are expressed through art, mythology, ritual, health practice, languages, and ecology. With examples spanning globe, consideration of issues of colonialism, tradition, religious change, and legal and social implications of epistemological differences between people. Examination of critical perspectives on social development, historical progress, and intellectual assimilation. P/NP or letter grading.

45. Introduction to Dance Studies. (4) Lecture, three hours. Introduction to discipline of dance studies, with focus on study of corporeality as key contemporary perspective on body. Multidisciplinary approach to dancing bodies conceptualized as social constructs, including attention to gender, race, class, and national identity. P/NP or letter grading.

46. Survey of Dancing in Selected Cultures. (2) Studio, three hours. Introduction to dances and their movement characteristics in global context. P/NP or letter grading.

47. World Dance Histories. (5) Lecture, three hours; discussion, two hours. Comparative framework for looking at dance practices through time as they have developed around world, questioning relation of dance to culture and politics and providing students with tools for investigating histories of any given dance form. P/NP or letter grading.

55. Intermediate World Arts Practices in Global and Transcultural Forms. (2) Studio, three hours; outside study, three hours. Intermediate-level study of world arts practices crossing national and cultural boundaries. Variable topics, such as body music, cross-cultural textile creation, or mural painting, in cultural and historical context. May be repeated for credit without limitation. P/NP or letter grading.

56. Intermediate World Arts Practices in Sub-Saharan Africa and Diaspora. (2) Studio, three hours. Intermediate-level study of world arts practices originating from sub-Saharan Africa or from cultures of African diaspora, including Brazil and Afro-Caribbean. Variable topics, such as dance of Guinea, Mali, and Senegal or Afro-Caribbean masking traditions, in cultural and historical context. May be repeated for credit without limitation. P/NP or letter grading.

57. Intermediate World Arts Practices in Middle East/North Africa and Diaspora. (2) Studio, three hours. Intermediate-level study of world arts practices originating from Middle East and North Africa. Variable topics, such as belly dancing or Israeli folk dance, in cultural and historical context. May be repeated for credit without limitation. P/NP or letter grading.

58. Intermediate World Arts Practices in Latin America and Diaspora. (2) Studio, three hours; outside study, three hours. Intermediate-level study of world arts practices originating from Latin America, including cultures of South and Central America. Variable topics, such as Argentine tango and Mexican folkloric dances, in cultural and historical context. May be repeated for credit without limitation. P/NP or letter grading.

59. Intermediate World Arts Practices in North America and Diaspora. (2) Studio, three hours. Intermediate-level study of world arts practices originating from North America, including U.S., Canada, and Native America. Variable topics, such as Native American dance, jazz, and jazz-tap, in cultural and historical context. May be repeated for credit without limitation. P/NP or letter grading.

60. Intermediate World Arts Practices in East Asia and Diaspora. (2) Studio, three hours; outside study, three hours. Intermediate-level study of world arts practices originating from East Asia, including China, Korea, and Japan. Variable topics, such as movement and music techniques of Beijing Opera, Korean shamanic movement practices, Kabuki theater, or Tai Chi, in cultural and historical context. May be repeated for credit without limitation. P/NP or letter grading.

61. Intermediate World Arts Practices in South Asia and Diaspora. (2) Studio, three hours. Intermediate-level study of world arts practices originating from South Asia or from cultures of South Asian diasporas, including communities in England and West Africa. Variable topics, such as Bharata Natyam (classical dance of India), bhangra (diasporic social dance), and hatha yoga, in cultural and historical context. May be repeated for credit without limitation. P/NP or letter grading.

62. Intermediate World Arts Practices in Southeast Asia and Diaspora. (2) Studio, three hours. Intermediate-level study of world arts practices originating from Southeast Asia. Variable topics, such as Cambodian court dance, Indonesian kechak, or Balinese legong, in cultural and historical context. May be repeated for credit without limitation. P/NP or letter grading.

63. Intermediate World Arts Practices in Europe and Diaspora. (2) Studio, three hours. Intermediate-level study of world arts practices originating from Europe and extending to cultures of European diaspora, including U.S. Variable topics, such as flamenco, Balkan folk dances, and classical ballet, in cultural and historical context. May be repeated for credit without limitation. P/NP or letter grading.

65. Intermediate Modern/Postmodern Dance. (2) Studio, four hours. Technical training with emphasis on increasing skill. May be repeated twice for credit. P/NP or letter grading.

67A. Theories and Methods in Dance Composition I: Languages. (4) (Formerly numbered 67.) Seminar, two hours; studio, two hours; outside study, eight hours. Enforced prerequisite: course 16. Examination of diverse movement sources from which dances are made. How do different choreographers envision vocabularies of movement they use? How do they select or create movement out of which they create dance? Answers to these questions in relation to broad range of artistic approaches, acknowledging that dance-making occurs distinctively in different cultural contexts and different historical moments. Readings about and viewing of videos of selected artists' work and their different strategies for creating languages of their dances for comparison. Use of these analyses to assist in creative process for making new dances. P/NP or letter grading.

67B. Theories and Methods in Dance Composition II: Processes. (4) (Formerly numbered 69.) Seminar, two hours; studio, two hours; outside study, eight hours. Enforced prerequisite: course 67A. Examination of diverse processes through which creation of dance can take place. How do different choreographers conceptualize creative process of dance-making? What kinds of strategies do they use for sequencing their materials? Answers to these questions in relation to broad range of artistic approaches, ac-

knowledging that dance-making occurs distinctively in different cultural contexts and different historical moments. Readings about and viewing of videos of selected artists' work and their different strategies for their processes of creating dances for comparison. Use of these analyses to assist in creative process for making new dances. P/NP or letter grading.

70. Production Practicum. (2) Lecture, 90 minutes; activity, three and one half hours. Introduction to practical perspectives on producing events in world arts and cultures, including but not limited to theatrical support and planning and executing lecture series. Introduction to professional stage production principles and hands-on experience in technical theater. May be repeated once for credit. P/NP grading.

78. Private Instruction in World Arts and Cultures. (2 to 4) Studio, three to six hours. Designed for freshmen/sophomores. Private or semiprivate instruction in one world arts practice with distinguished community-based artist to be arranged by students and approved by instructor. May be repeated for maximum of 24 units. P/NP grading.

85. Sophomore-Year Proposal. (1) Lecture, 90 minutes. Planning and execution of proposal for junior year of study, with attention to exploring resources of department and University as whole. P/NP grading.

Upper Division Courses

100A. Art as Social Action. (5) Lecture, four hours; discussion, one hour. Designed for juniors/seniors. Discussion of what constitutes artist's social responsibility and in what ways art is qualified to engage in direct political action. Study of tension between powers of this world and powers of art. P/NP or letter grading.

100B. Art as Moral Action. (5) Lecture, four hours; discussion, one hour. Designed for juniors/seniors. One's ability to distinguish between right and wrong action is culturally intuited, nurtured, and developed. Study of cultural strategies of moral engagement, persuasion, and inquiry in personal and public life, including acts of conscience and civil disobedience. P/NP or letter grading.

101. Theories of Performance. (5) Lecture, four hours; studio, two hours. Requisite: course 85. Performance commonly refers to activities on proscenium stage. Explosion of that narrow notion of performance by delving into scholarship from young field of performance studies, which draws on disciplines of anthropology, cultural studies, gender studies, linguistics, postcolonial theory, and sociology. Exploration in studio of concept of performing theory by creating interdisciplinary performance works that engage with and amplify theories studied. P/NP or letter grading.

102. Seminar: Intercultural and Interdisciplinary Performance. (4) Seminar, four hours. Requisite: course 101. Recent discussions of multiculturalism have demanded broader base of cultural literacy for society in general and from artists in particular. Moving beyond stereotyping and formalism, focus on areas of overlap and exchange, collaborations, collective creation, hybridization, and evolving possibilities of video and extended media. P/NP or letter grading.

103. Arts in Communities. (5) Lecture, four hours. Requisite: course 85. Introduction to theoretical and practical understanding of field of community arts by and for multiple publics. Review of relevant issues in field and exploration of roles of artists and arts organizations in struggles for social change, representation, and community building. Through national and international examples, exploration of art works that emphasize participation of citizens in community-based and culturally relevant performance, art, and exhibition. Examination of processes of creative thinking, community involvement, collaborative enterprise, research, and education in community arts. Letter grading.

C106A. Advanced World Arts Practices in Sub-Saharan Africa and Diaspora. (2) Studio, three hours; outside study, three hours. Advanced-level study of world arts practices originating from sub-Saharan Africa and African diaspora. Variable topics and genres, such as West Africa (Burkina Faso, Mali, Guinea, Senegal) and diaspora (Haiti, Brazil, Caribbean, Cu-

ba), including cultural and historical context. May be repeated for credit without limitation. Concurrently scheduled with course C406A. P/NP or letter grading.

C109A. Advanced World Arts Practices in North America and Diaspora. (2) Studio, three hours; outside study, three hours. Advanced-level study of world arts practices originating from North America, including U.S., Canada, and Native America. Variable topics, such as Native American dance, jazz, and jazz-tap, in cultural and historical context. May be repeated for credit without limitation. Concurrently scheduled with course C409A. P/NP or letter grading.

110B. Dance in East Asia. (4) Lecture, four hours. Survey of dances of Japan, China, and Korea and factors that have influenced their development and social function. Consideration of relationship of dance to other art forms. Lectures illustrated with demonstrations, films, and slides. P/NP or letter grading.

111B. Dance in South Asia. (4) Lecture, four hours. Survey of dance forms in India and Sri Lanka. Factors influencing development of dance, its social function, and its relationship to other art forms. Lectures illustrated with demonstrations, films, and slides. P/NP or letter grading.

112B. Dance in Southeast Asia. (4) Lecture, four hours. Survey of selected ritual, social, and court dances of Indonesia, Cambodia, Thailand, and Philippines. Social, historical, and aesthetic factors. Lectures illustrated with demonstrations, films, and slides. P/NP or letter grading.

C113A. Advanced World Arts Practices in Europe and Diaspora. (2) Studio, three hours; outside study, three hours. Advanced-level study of world arts practices originating from Europe and extending to cultures of European diaspora, including U.S. Variable topics, such as flamenco, Balkan folk dances, and classical ballet, in cultural and historical context. May be repeated for credit without limitation. Concurrently scheduled with course C413A. P/NP or letter grading.

114. Performance Practicum. (1 to 4) Studio, three to 12 hours. Rehearsal and performance in selected community-based or theatrical work. May be repeated for credit without limitation. P/NP or letter grading.

C115. Advanced Modern/Postmodern Dance. (2) Studio, six hours. Requisite: course 65. Studies in advanced modern/postmodern dance technique, with emphasis on performing skills. May be repeated for credit without limitation. Concurrently scheduled with course C415. P/NP or letter grading.

116. Advanced Improvisation in Dance. (2) Studio, four hours. Development of aesthetic perspective through use of imagery, sound, and other art. Concentration and projection. May be repeated twice. P/NP or letter grading.

117A. Theories and Methods in Dance Composition III: Locations. (4) Seminar, two hours; studio, two hours; outside study, eight hours. Enforced requisites: courses 16, 67A, 67B. Examination of how location of dancing impacts its meaning. How does occasion of dance, concert, festival, ritual, or celebration influence experience of it? What are factors that need to be considered when locating dance in one particular place? Answers to these questions in relation to broad range of artistic approaches, acknowledging that dance-making occurs distinctively in different cultural contexts and different historical moments. Examination of range of locations for dances, including proscenium stages, theaters in round, parks, sidewalks, temples, amphitheaters, village squares, and other site-specific locations that endow dance with specific significance and how various artists have worked with place in construction of new dances. Use of these analyses to assist in creative process for making new dances. P/NP or letter grading.

117B. Theories and Methods in Dance Composition IV: Impacts. (4) Seminar, two hours; studio, two hours; outside study, eight hours. Enforced requisite: course 117A. Examination of relation of dance to its audience. Synthesis of analyses undertaken in previous courses to determine how dances move their viewers. How do dances appeal to or address their audiences? How do dance vocabulary, sequencing,

and location combine to create particular effects? Answers to these questions in relation to broad range of artistic approaches, acknowledging that dance-making occurs distinctively in different cultural contexts and different historical moments. Different approaches to dance result in highly distinctive kinds of responses from audiences. Focus on creation of three in-depth studies, each of which endeavors to construct distinctive kind of response from viewers. P/NP or letter grading.

117C. Advanced Topics in Choreography. (4) (Formerly numbered 117.) Lecture, four hours; studio, two hours; outside study, six hours. Enforced requisites: courses 16, 67A, 67B. Directed exploration in composition, with focus on developing theme-based choreographic works that are informed by theoretical engagement with selected topics through lectures, readings, and discussion. Thematic topics include contemporary issues and concerns such as image, essence, and abstraction; home, history, and memory; interculturalism; constructing identity. May be repeated for credit without limitation. P/NP or letter grading.

118. Advanced Interdisciplinary Composition. (4) Lecture, four hours; studio, two hours. Enforced requisites: courses 67A, 67B. Directed exploration in composition, with focus on developing works that engage two or more disciplines, such as dance, music, visual art, performance art. Theoretical engagement with selected topics through lectures, readings, and discussions. May be repeated for credit without limitation. P/NP or letter grading.

119. Advanced Intercultural Composition. (4) Lecture, four hours; studio, two hours. Enforced requisites: courses 67A, 67B. Directed exploration in composition, with focus on works that engage techniques and practices of two or more cultures. Engagement with postcolonial theory through lectures, readings, and discussions. May be repeated for credit without limitation. P/NP or letter grading.

120. Selected Topics in Cultural Studies. (4) Lecture, three hours. Designed for juniors/seniors. Selected topics in interdisciplinary study of arts and performance in cultural and historical context. Consult *Schedule of Classes* for topics to be offered in specific term. May be repeated for credit without limitation. P/NP or letter grading.

121. Ethnography of Performance. (4) Lecture, two hours; discussion, two hours; outside study, eight hours. Development of observation and recording skills for study of performance events, including both analytical consideration of selected ethnographies and training in and application of field research methodologies. P/NP or letter grading.

122. Introduction to Folklore. (4) Lecture, four hours. Survey of various forms of folklore and approaches to their identification, description, and analysis, including their historical and social significance. Introduction to expressive behavior of folk groups from throughout world and comparison through readings, lectures, film, and fieldwork, with attention to artistic, religious, and other traditions in relation to evolving popular culture. P/NP or letter grading.

C123. Arts of Identity: Survey of Expressive Cultures. (4) Lecture, four hours; outside study, eight hours. Introduction to study of arts, performance, and creativity in cultural context. Special attention to relationship between arts and identity and to role of artists in cultural survival and transformation. Concurrently scheduled with course C223. P/NP or letter grading.

M125A. Beyond Mexican Mural: Beginning Muralism and Community Development. (4) (Same as Art M186A and Chicana and Chicano Studies M186A.) Studio/lecture, four hours. Corequisite: course M125AL. Investigation of muralism as method of community education, development, and empowerment. Exploration of issues through development of large-scale collaborative digitally created image and/or painting for placement in community. Students research, design, and work with community participants. P/NP or letter grading.

M125AL-M125BL-M125CL. Beyond Mexican Mural: Muralism and Community Laboratory. (4-2-2) (Same as Art M186AL-M186BL-M186CL and Chicana and Chicano Studies M186AL-M186BL-M186CL.) Course M125AL is requisite to M125BL, which is requisite to M125CL. Mural and Digital Laboratory is art studio housed at Social and Public Art Resource Center in Venice, CA, where students work in community-based setting. Open to students during scheduled hours with laboratory tech support, it offers instruction as students independently and in collaborative teams research, design, and produce large-scale painted and digitally generated murals to be placed in community setting. P/NP or letter grading. **M125AL.** Beginning. Laboratory, four hours. Corequisite: course M125A; **M125BL.** Intermediate. Laboratory, four hours. Requisites: courses M125A, M125AL. Corequisite: course M125B; **M125CL.** Advanced. Laboratory, two hours. Corequisite: course M125C.

M125B. Beyond Mexican Mural: Intermediate Muralism and Community Development. (4) (Same as Art M186B and Chicana and Chicano Studies M186B.) Studio/lecture, four hours. Requisites: courses M125A, M125AL. Corequisite: course M125BL. Continuation of investigation of muralism as method of community education, development, and empowerment. Exploration of issues through development of large-scale collaborative digitally created image and/or painting for placement in community. Students research, design, and work with community participants. Continuation of project through states of production to full scale and community approval. P/NP or letter grading.

M125C. Beyond Mexican Mural: Advanced Muralism and Community Development. (4) (Same as Art M186C and Chicana and Chicano Studies M186C.) Studio/lecture, six hours. Requisites: courses M125B, M125BL. Corequisite: course M125CL. Continuation of investigation of muralism as method of community education, development, and empowerment. Exploration of issues through development of large-scale collaborative digitally created image and/or painting for placement in community. Students research, design, and work with community participants. Continuation of project through installation, documentation, and dedication, with work on more advanced independent projects. P/NP or letter grading.

M126. Whose Monument Where: Course on Public Art. (4) (Same as Art M185 and Chicana and Chicano Studies M185.) Lecture, four hours. Recommended corequisite: course M125A, M125B, or M125C. Examination of public monuments in U.S. as basis for cultural insight and critique of American values from perspective of artist. Use of urban Los Angeles as textbook in urban space issues such as who is "public," what is "public space" at end of 20th century, what defines neighborhoods, and do different ethnic populations use public space differently. P/NP or letter grading.

M128. Chicana Art and Artists. (4) (Same as Art M184 and Chicana and Chicano Studies M175.) Lecture, four hours. Introduction to Chicana art and artists. Examination of Chicana aesthetic. Chicana artists have developed unique experience and identity as artists and Chicanas. Letter grading.

C129. Food Customs and Symbolism. (4) Lecture, three hours. Designed for juniors/seniors. Introduction to foodways, with particular attention to customs and symbolism in America. Topics include sensory realm, child rearing practices, foodsharing, food and identity, food and its emotional significance, aversions and taboos, advertising, changing food habits, and American diet. Concurrently scheduled with course C229. P/NP or letter grading.

M130. Space and Place. (4) (Same as Architecture and Urban Design M130.) Lecture, three hours. Survey of array of spaces and places from cross-cultural or comparative perspective and with performance emphasis, with focus on mutual interaction of human beings and their created environments. Emphasis on "common," "ordinary," "anonymous," or "vernacular" nonbuilt and built environments, which are built and used by members of small-scale, "traditional," and "transitional" communities around world. P/NP or letter grading.

- 131. Folk Art and Aesthetics. (4)** Lecture, four hours. Designed for juniors/seniors. General course concerned with folk art, aesthetics, and material culture and with theoretical concepts and methodologies utilized in their analysis. P/NP or letter grading.
- 132. Narrative and Oral Performance. (4)** Lecture, four hours. Survey of concepts of story as text versus narrating as oral performance, studies of individual narrators, how stories are composed in performance, interaction of narrator and audience, how place and experience become embodied in narratives, modes of representing oral narrating, and politics of stories and oral performance. P/NP or letter grading.
- 133. Textiles of World. (4)** Lecture, four hours; discussion, one hour; laboratory, one hour. How cloth and clothing was and continues to be hand-woven in indigenous societies. Use of textiles from Fowler Museum collection to coordinate hands-on experience with cultural history. May be repeated twice for credit. P/NP or letter grading.
- 134. Oral Traditions in Africa. (4)** Lecture, four hours. Designed for juniors/seniors. Survey of African folk traditions: folktale, epic, heroic poetry, and folk song. P/NP or letter grading.
- 135. African Popular Arts. (4)** Lecture, three hours. Introduction to problems and issues in study of popular arts in sub-Saharan Africa. Lectures, readings, and audiovisual materials focus on broad spectrum of creative forms and processes, including visual and plastic arts, literature, performed genres such as music, poetry, theater, and dance, and everyday practices such as hair weaving, housepainting, personal adornment, and joke telling. P/NP or letter grading.
- M136. Culture of Jazz Aesthetics. (4)** (Same as Anthropology M142R and Ethnomusicology M130.) Lecture, three hours. Prerequisite: course 20 or Anthropology 9 or 33 or Ethnomusicology 20A or 20B or 20C. Aesthetics of jazz from point of view of musicians who shaped jazz as art form in 20th century. Listening to and interacting with professional jazz musicians who answer questions and give musical demonstrations. Analytical resources and historical knowledge of musicians and ethnomusicologists combined with those interested in jazz as cultural tradition. P/NP or letter grading.
- C139. Afro-Caribbean Ritual Arts: Vodou and Santería. (4)** Lecture, three hours. Designed for juniors/seniors. Ethnography of diaspora African religions, including Vodou, Santería, and Candomblé. Lectures, readings, and video material focus on performance of ritual and its expression in religious art. Concurrently scheduled with course C239. P/NP or letter grading.
- CM140. Women Healers, Ritual, and Transformation. (4)** (Same as Women's Studies CM143.) Lecture, four hours; outside study, eight hours. Designed for juniors/seniors. Examination of role of women healers, historically and within contemporary culture-specific contexts. Exploration of psychological functions served by rites of passage and healing rituals and of role of arts in healing troubled communities. Concurrently scheduled with course CM240. P/NP or letter grading.
- C141. Carnival and Festivity. (4)** Lecture, three hours; fieldwork, one hour. Study of traditional calendrical, religious, and local festivals and related events in their cultural and historical contexts, with emphasis on American festival occasions and their Old World antecedents. Topics include carnival and carnivalesque and politics of celebration. Concurrently scheduled with course C241. P/NP or letter grading.
- C142. Myth, Magic, and Mind. (4)** Lecture, four hours; outside study, eight hours. Designed for juniors/seniors. Consideration of metaphor and symbol, reflexive anthropology, and notion of culture as text applied to such examples as trickster figures, rhetorical devices including parable and irony, and arguably magical experience of humans "shape-shifting" to become animals. Concurrently scheduled with course C242. P/NP or letter grading.
- 143A. Introduction to Museology: Museum Collections and Administration. (5)** Lecture, six hours. Introduction to history and functions of museums, tracing development to present. Collection, organization, management, and conservation of objects and legal and ethical issues surrounding these practices. P/NP or letter grading.
- 143B. Introduction to Museology: Museum Exhibitions and Education. (5)** Lecture, six hours. Conceptual development of exhibitions and formulation of educational and other goals for specified audiences. Design considerations, media applications, and installation process. P/NP or letter grading.
- 143C. Introduction to Museology: Selected Topics. (4)** Seminar, six hours; individual study, six hours. Students pursue projects in area of museum operations, working with staff members and museum directors to produce papers on contemporary issues in museums. For example, one student might work under curator and director to examine cultural property issues as they pertain to contemporary museums, following suggested reading list. P/NP or letter grading.
- 144. Make Art/Stop AIDS. (5)** Lecture, four hours; studio, two hours. Can arts save lives? That is central question posed here in relation to global AIDS epidemic. Working in close connection with public health and epidemiology, exploration of arts as powerfully effective tool in AIDS prevention and treatment efforts. Review of literature of AIDS cultural analysis that emerged in late 1980s in U.S. and application of that literature to international hot spots such as India, China, South Africa, and Brazil. Collaborative theory-in-action projects. P/NP or letter grading.
- C145. Selected Topics in Dance Studies. (2 to 4)** Lecture, four hours; outside study, eight hours. Designed for juniors/seniors. Selected topics in study of dance and corporeality. Consult *Schedule of Classes* for topics to be offered in specific term. May be repeated for credit without limitation. Concurrently scheduled with course C245. P/NP or letter grading.
- C146. Politics of Performance. (4)** Seminar, four hours; outside study, eight hours. Designed for juniors/seniors. Opportunity to reflect on artists and intellectuals as cultural workers operating in domains of ideology, aesthetics, and theory. Analysis of such keywords as ideology, aesthetics, theory, art, politics, intervention, intellectuals, and artists. Concurrently scheduled with course C246. P/NP or letter grading.
- C147. Arts and Healing. (4)** Lecture, four hours. Interdisciplinary, contemporary arts-based model of healing applicable to persons leading Western modernist lifestyles and coping with two kinds of social crises during their lifetimes: (1) developmental transitions that are disruptive life-cycle changes that have potential to promote self-regeneration or self-fragmentation and (2) external transitions that are situational catastrophic events that evoke great terror and trigger fears of annihilation and chaos, but if successfully negotiated, have potential to promote revitalized sense of self, greater compassion for others, and restored sense of trust and hope in humanity. Concurrently scheduled with course C247. P/NP or letter grading.
- C148. Dance as Healing and Therapy. (4)** Lecture, two hours; laboratory, two hours; outside study/research, eight hours. Designed for juniors/seniors. Introduction to historical, theoretical, methodological, and ethical considerations involved in practice of dance as healing and therapy. Concurrently scheduled with course C248. Letter grading.
- 149. Dance in Multicultural U.S. (4)** Lecture, two hours; discussion, one hour; laboratory, one hour. Designed for juniors/seniors. Study of dance performance in U.S., with emphasis on genres that can be viewed in multicultural Los Angeles, from concert modern/postmodern dance, Mexican folklorico, and Japanese *butoh* to popular idioms and video dance. Attention to genres from Native America, Americas, Oceania, Asia, Africa, and Europe. Student projects involve creation of in-class performances. P/NP or letter grading.
- 150. History of Dance in Culture and Performance. (4)** Lecture, two hours; discussion, one hour; laboratory, one hour. Study of dance in historical and cultural context, its function in society and its relationship to contemporary artistic expression. Focus on topics from traditional and recent research in world dance. P/NP or letter grading.
- C152. History and Theory of Modern/Postmodern Dance. (4)** Lecture, four hours; studio, two hours; outside study, six hours. Introduction to key figures in creation of modern dance, with special attention to their theories and philosophies and tracing of radical shift to postmodern dance that occurred in mid-20th century. Contemporary developments, both historical and theoretical. Student projects involve choreography and writing. Concurrently scheduled with course C252. P/NP or letter grading.
- C154. Dance and Folklore. (4)** Lecture, four hours. Consideration of vernacular tradition as site for cultural configuration, social construction, representation, and display of national, ethnic, and other affinity identities. Emphasis on various European and European American dance idioms. Concurrently scheduled with course C254. P/NP or letter grading.
- C155. Self and Culture. (4)** Lecture, two hours; laboratory, two hours; outside study, eight hours. Designed for juniors/seniors. Examination of critical developmental processes and situational factors contributing to construction of sense of self and emergence of creativity and subjective relatedness in different cultural contexts. Concurrently scheduled with course C255. P/NP or letter grading.
- C156. Frida Kahlo: Creation of Cultural Icon. (5)** Lecture, four hours. Examination of life of renowned Mexican artist Frida Kahlo in light of (1) Mexico's political, religious, and social history that gave rise to *mestizaje* and *machismo*, two social conditions that strongly influenced construction of her *mestiza* and gender identity, as well as her revolutionary political ideals, (2) obstacles that 20th-century female artists living in patriarchal societies had to confront, (3) way her significant attachments influenced her construction of subjective sense of self and kinds of artwork she produced, (4) transcendent and self-regulatory functions her self-portraits served in maintaining her emotional equilibrium, (5) conversion of Kahlo's image after her death into cultural icon by culturally disenfranchised groups, and (6) psychosocial conditions and processes that tend to promote creation of cultural icons. Concurrently scheduled with course C256. P/NP or letter grading.
- 157. Choreographing Disability. Seminar, four hours.** Through study of range of performance by, featuring, or about people who identify as disabled, reading and discussion of range of writing about experiences of disability and process of making work about disability by key artists and thinkers. Introduction to concept of choreography as political/cultural idea broadly defined as scored movement and organization and behavior of bodies, as well as choreography as poetic form for expression of ideas, creative tool, or product. Viewing and discussion of work, and embodying ideas through movement and dance-making. P/NP or letter grading.
- 158. Choreographing Gender. (4)** Lecture, three hours; laboratory, two hours. Designed for juniors/seniors. Analysis of aesthetic codes and theatrical choreographic approaches as they intersect with construction of gender in U.S., with close attention to race, class, and sexuality. P/NP or letter grading.
- 159. Movement Theories. (2)** Lecture, two hours; laboratory, two hours. Study of motor coordination patterns as related to expressive movement features for dance performance. Personalized attention and use of video to increase students' stylistic diversity. Development of movement efficiency for prevention of dance injuries. May be repeated twice. P/NP or letter grading.
- 160. Topics in Body Mechanics. (4)** Lecture, three hours; studio, one hour. Designed for juniors/seniors. Variable topics course with discussion of injury prevention, anatomy for dancers, and study of biological and physical principles of human movement as related to dance. May be repeated for credit without limitation. P/NP or letter grading.
- 161. Movement Observation and Analysis. (4)** Lecture, two hours; laboratory, two hours. Designed for juniors/seniors. Use of variable theoretical frameworks and techniques such as labananalysis to em-

phasize culturally defined processes of observing, analyzing, and describing human movement. P/NP or letter grading.

C164. Public Writing in Arts. (4) Lecture, four hours; outside study, eight hours. Survey of journalistic approaches to writing about arts, with eye toward shaping critique of public writing practices and putting that critique into practice. Exploration of new modes of (and venues for) writing that rebalance power differential between art makers and commentators. Concurrently scheduled with course C264. P/NP or letter grading.

165. Foundations of Dance Education. (4) Lecture, two hours; laboratory, three hours. Introduction to movement concepts, skills, and teaching principles for modern/postmodern dance instruction. Supervised teaching practicum included. P/NP or letter grading.

166. Dance as Culture in Education. (4) Lecture, two hours; laboratory, two hours. Theoretical and practical aspects of teaching ethnic dance, especially in higher education. P/NP or letter grading.

167. Creative Dance for Children. (4) Lecture, three hours; laboratory, one hour. Introduction to movement concepts, skills, and principles for teaching children's dance; emphasis on dance as creative medium of expression. P/NP or letter grading.

C168. Beyond Academia: Making Art in Real World. (4) Lecture, four hours; outside study, eight hours. Designed for juniors/seniors. Focus on understanding bureaucratic structures and regional histories conditioning creation of art in real world, including such practical issues as publicity and grant-writing. Concurrently scheduled with course C268. P/NP or letter grading.

169. Repertory Tour Ensemble. (2 or 4) Lecture, two hours; studio, four to six hours. Designed for World Arts and Cultures majors. Creation and presentation of performances in community, with special emphasis on problems of touring companies with variable repertoire. May be repeated once. P/NP or letter grading.

170. Advanced Production. (1) Laboratory, three hours. Requisite: course 70. Further development and application of technical and administrative support practices in producing events in world arts and cultures, including but not limited to theatrical support and planning and executing lecture series. May be repeated for credit without limitation. P/NP or letter grading.

171. Lighting Design for Dance Theater. (4) Lecture, four hours; laboratory, two hours. Lighting for dance: examination of aesthetics, principles, and technical elements. Application to selected choreographies to be publicly performed. P/NP or letter grading.

172. Costume and Scenic Design Concepts for Dance Theater. (4) Lecture, four hours. Study of theory for conceptualizing dance performance environments, communication through visual elements, artistic properties of costume and sets media, and procedures for producing dance costumes and sets in order to facilitate choreographer/designer communication. P/NP or letter grading.

C173. Sound Resources for Performance. (4) Lecture, three hours; studio, one hour; outside study, eight hours. Designed for juniors/seniors. Exploration of music, in search of interesting, new, and unusual. Investigation of musical possibilities via record store, Internet, and music library; environmental sounds and patterns; body (clapping, stepping, and singing); and hardware store (found sound). Participants collaborate with fellow students in creative efforts and in presentations of research results. Concurrently scheduled with course C273. P/NP or letter grading.

174A. Projects in World Arts and Cultures. (2) (Formerly numbered 174.) Laboratory, four hours. Individualized major projects in choreography, performance, cultural studies, production, and media. May be repeated for credit. P/NP or letter grading.

174B. Projects in World Arts and Cultures. (4) (Formerly numbered 174.) Laboratory, six hours. Individualized major projects in choreography, performance, cultural studies, production, and media. May be repeated for credit. P/NP or letter grading.

C175. Applied Folklore. (4) Lecture, four hours. Designed for juniors/seniors. Introduction to methods and issues in application of folklore studies to such areas as education, health, museums, organization development, tourism, environmental planning, economic and community development, aging, art therapy, and public sector folklife. Concurrently scheduled with course C275. P/NP or letter grading.

177SL. Taking Action: Arts Practice and Community Service. (4) Seminar, four hours; outside study, eight hours. Enforced prerequisite: course 103. Designed for juniors/seniors. Application of training in world arts and cultures through service projects designed by students in collaboration with selected community organizations and institutions. Reflection on impact of service on communities and theories. May be repeated once for credit. P/NP or letter grading.

178. Advanced Private Instruction in World Arts and Cultures. (2 to 8) Studio, three to 12 hours. Designed for juniors/seniors. Private or semiprivate instruction in one world arts practice with distinguished community-based artist to be arranged by students and approved by instructor. May be repeated for maximum of 24 units. P/NP or letter grading.

C180. Video Production in Arts. (4) Lecture, one hour; laboratory, three hours. Fundamentals of video production: conceptualization, field recording (camera, lighting, sound, coverage), and editing (organizing raw footage, constructing program, mastering finished tape). Emphasis alternates quarterly between ethnographic documentary and dance/choreography. May be repeated once for credit. Concurrently scheduled with course C280. Letter grading.

181. Ethnographic Film. (4) Lecture, four hours. Survey of ethnographic film and video, with focus on studies of expressive culture. Emphasis on critical and comparative approaches to visual study of culture, community, and arts. P/NP or letter grading.

182. Dance and Visual Media. (4) Lecture, four hours. Examination of aesthetic differences between dance, film, and video and exploration of new aesthetic when they are combined. Analysis of record and documentary dance film, choreo-cinema, and impact of MTV, as well as integration of media with performance. Letter grading.

C183. Film and Folklore. (4) Lecture, three hours. Designed for juniors/seniors. Introduction to film criticism and folklore methodology. Topics include early examples of folklore on film, changing conceptions of folklore and uses of films about folklore, and examples of films by, with, and for folklorists. Concurrently scheduled with course C283. P/NP or letter grading.

C184. Production Arts Seminar. (4) Seminar, four hours. Theory and practice of production administration, including hands-on case studies for producing public events in arts and academia. Topics include, but are not limited to, history and theories of producing, mission statements, budgeting, marketing, public relations, fundraising, legalities, and archiving. Concurrently scheduled with course C243. P/NP or letter grading.

185. Junior-Year Proposal. (1) Lecture, 90 minutes; outside study, 90 minutes. Requisite: course 85. Limited to World Arts and Cultures majors. Planning and execution of proposal (either senior focus or senior honors project) for senior-year study, with attention to exploring resources of department and University as whole. May be repeated once for credit. P/NP or letter grading.

186A-186B. Senior Honors Projects in World Arts and Cultures. (5-5) Lecture, four hours; outside study, 11 hours. Requisite: course 185. Course 186A is requisite to 186B. Limited to senior World Arts and Cultures majors. Application of concepts and content from interdisciplinary major to individual projects. Methodologies may include critical, comparative, ethnographic, and performance approaches. Lecture/seminar format with World Arts and Cultures faculty during first term; faculty-directed presentations of individual projects during second term. Letter grading.

195. Community or Corporate Internships in World Arts and Cultures. (2 to 4) Tutorial, six hours. Internship in supervised setting in community agency or business. Students meet on regular basis with instructor and provide periodic reports of their experi-

ence. May be repeated for maximum of 8 units. Individual contract with supervising faculty member required. P/NP or letter grading.

199. Directed Research in World Arts and Cultures. (2 to 4) Tutorial, two hours. Preparation: 3.0 grade-point average in major. Limited to juniors/seniors. Supervised individual research or investigation under guidance of faculty mentor. Culminating paper or project required. May be repeated for maximum of 8 units. Individual contract required. P/NP or letter grading.

Graduate Courses

200. Theories of Culture. (4) Seminar, three hours; outside study, nine hours. Introduction to history of culture concept in arts, humanities, and social sciences. Analysis of contemporary debates concerning ownership and use of word "culture" and critical elucidation of study of culture. S/U or letter grading.

201. Theories of Performance. (4) Seminar, three hours; outside study, nine hours. Close reading and analysis of classic and contemporary studies of performance and related aesthetic practices. Familiarization with ways in which "performance" is defined and deployed by scholars working in disciplines of anthropology, dance, folklore, linguistics, literature, musicology, performance studies, philosophy, sociology, and theater. S/U or letter grading.

202. Research Methodologies. (4) (Not same as course 202 prior to Fall Quarter 2009.) Seminar, three hours; outside study, nine hours. Hands-on course designed to help students develop understanding of many developed qualitative research methods and designs they encounter in their work. Identification and creation of research problems, development of designs, actual data collection, and analysis procedures to address those problems. S/U or letter grading.

203. Proseminar: Dance Studies. (4) Seminar, three hours; outside study, nine hours. Survey of theoretical issues and problems in study of dance and body movement in cultural, social, and historical context. S/U or letter grading.

204. Theories of Corporeality. (4) Seminar, three hours; outside study, nine hours. Cross-cultural and interdisciplinary perspectives on human body. Topics include representations of body, body symbolism, embodiment of identity (including gender, race, ethnicity, and class identities), and analysis of dance and other somatic modes of performance. S/U or letter grading.

205. Folklore Theories and Methods. (4) Lecture, three hours; outside study, nine hours. Introductory course in history, analytical perspectives, and current trends, including research techniques in contemporary folkloristics. S/U or letter grading.

206. Folklore Seminar. (4) Seminar, three hours; outside study, nine hours. Variable topics. Detailed consideration of particular folk genre, culture area, historical period, and/or theoretical issue in field of folklore. May be repeated for credit. S/U or letter grading.

207. Ethnography of Performance. (4) (Formerly numbered 202.) Seminar, three hours; outside study, nine hours. Survey of methods and methodological issues in ethnographic study of performance in cultural context. Field documentation, participant observation, oral history and interview techniques, performative dimensions of ethnographic research, ethics, and politics of ethnographic representation. S/U or letter grading.

210. Ethnography of and as Colonialism. (4) Seminar, three hours. Beginning with 1550 debates over Indian humanity and ranging to contemporary scholarship about and by indigenous peoples, focus on intersections of writing, colonialism, violence, and historiography in Americas. Exploration of relationship between 16th-century reasoning about race and postmillennial, Western, and academic practices of writing history. Development of critical stance on utility of postcolonial theories as such perspectives bear on anthropological and historical studies of indigenous religiosity. Regions include southwest Columbia, Orinoco Delta in Venezuela, Valley of Mexico, and several examples throughout U.S. southwest, plains, and northeast. S/U or letter grading.

211A-211F. Advanced Choreography. (4 each)

Lecture, two hours; studio, two hours. Theoretical aspects of advanced choreography for students who have reached level of self-initiation of substantial creative works. Refinement and realistic self-evaluation; critical counsel by acknowledged choreographers. S/U or letter grading.

216. Analyzing Narrative and Oral Performance. (5)

Lecture, four hours. Designed for graduate students. Exploration of ways of documenting individual narrators and interpreting their styles and repertoires; how narrators conceptualize and perform narrative discourse, impact of audience and situated event on both narrating and story, how experiences and values are communicated through narrating, modes of representing oral narrating, and politics of narrative and oral performance. S/U or letter grading.

220. Seminar: Culture and Performance. (4)

Seminar, three hours; outside study, nine hours. Designed for graduate students. Variable topics in interdisciplinary study of expressive culture, arts, and performance in social and historical context. May be repeated for credit without limitation. S/U or letter grading.

222. Music for Dance. (4)

Lecture, four hours. Requirement: course C173 or C273. Theory of aesthetic and functional relationship of music to dance. Letter grading.

C223. Arts of Identity: Survey of Expressive Cultures. (4)

Lecture, four hours; outside study, eight hours. Introduction to study of arts, performance, and creativity in cultural context. Special attention to relationship between arts and identity and to role of artists in cultural survival and transformation. Concurrently scheduled with course C123. S/U or letter grading.

225A-225B. Theories of Movement: Laban Analysis. (4-4)

Lecture, two hours; laboratory, two hours. Theories of Laban movement analysis as means for analyzing and describing human movement. Use of Laban movement analysis to increase movement observation skills and theoretical understanding of role of movement in dance, nonverbal behavior, and cross-cultural dance studies. Focus on complex movement patterns and timing. S/U or letter grading.

C229. Food Customs and Symbolism. (4)

Lecture, three hours. Designed for graduate students. Introduction to foodways, with particular attention to customs and symbolism in America. Topics include sensory realm, child rearing practices, foodsharing, food and identity, food and its emotional significance, aversions and taboos, advertising, changing food habits, and American diet. Concurrently scheduled with course C129. S/U or letter grading.

230. Research Methods and Bibliography in Dance. (4)

Lecture, four hours. Survey of methods for scholarly analysis of dance materials using systems from social sciences, physical sciences, and humanities. S/U or letter grading.

232. Aesthetics of Dance. (4)

Lecture, four hours. Analysis of aesthetic concepts and critical methods used in writing about dance. S/U or letter grading.

C239. Afro-Caribbean Ritual Arts: Vodou and Santeria. (4)

Lecture, three hours. Designed for graduate students. Ethnography of diaspora African religions, including Vodou, Santeria, and Candomble. Lectures, readings, and video material focus on performance of ritual and its expression in religious art. Concurrently scheduled with course C139. S/U or letter grading.

CM240. Women Healers, Ritual, and Transformation. (4)

(Same as Women's Studies CM243.) Lecture, four hours; outside study, eight hours. Designed for graduate students. Examination of role of women healers, historically and within contemporary culture-specific contexts. Exploration of psychological functions served by rites of passage and healing rituals and of role of arts in healing troubled communities. Concurrently scheduled with course CM140. S/U or letter grading.

C241. Carnival and Festivity. (4)

Lecture, three hours; fieldwork, one hour. Study of traditional calendrical, religious, and local festivals and related events in their cultural and historical contexts, with emphasis on American festival occasions and their Old World

antecedents. Topics include carnival and carnivalesque and politics of celebration. Concurrently scheduled with course C141. S/U or letter grading.

C242. Myth, Magic, and Mind. (4)

Lecture, four hours; outside study, eight hours. Designed for graduate students. Consideration of metaphor and symbol, reflexive anthropology, and notion of culture as text applied to such examples as trickster figures, rhetorical devices including parable and irony, and arguably magical experience of humans "shape-shifting" to become animals. Concurrently scheduled with course C142. S/U or letter grading.

C243. Production Arts Seminar. (4)

(Formerly numbered 243.) Seminar, four hours. Theory and practice of production administration, including hands-on case studies for producing public events in arts and academia. Topics include, but are not limited to, history and theories of producing, mission statements, budgeting, marketing, public relations, fund-raising, legalities, and archiving. Concurrently scheduled with course C184. S/U or letter grading.

244. Folk Medicine. (4)

Seminar, three hours; outside study, nine hours. Exploration of fundamental concepts, analytical approaches, and recurrent questions in research on folk or traditional medicine, including categories and motivations of healers, varieties of illness, and treatment modalities such as use of faith- and plant-based remedies, along with issues about persistence, efficacy, and development of culturally sensitive healthcare. S/U or letter grading.

C245. Selected Topics in Dance Studies. (2 to 4)

Lecture, four hours; outside study, eight hours. Designed for graduate students. Selected topics in study of dance and corporeality. Consult *Schedule of Classes* for topics to be offered in specific term. May be repeated for credit without limitation. Concurrently scheduled with course C145. S/U or letter grading.

C246. Politics of Performance. (4)

Seminar, four hours; outside study, eight hours. Designed for graduate students. Opportunity to reflect on artists and intellectuals as cultural workers operating in domains of ideology, aesthetics, and theory. Analysis of such keywords as ideology, aesthetics, theory, art, politics, intervention, intellectuals, and artists. Concurrently scheduled with course C146. S/U or letter grading.

C247. Arts and Healing. (4)

Lecture, four hours. Interdisciplinary, contemporary arts-based model of healing applicable to persons leading Western modernist lifestyles and coping with two kinds of social crises during their lifetimes: (1) developmental transitions that are disruptive life-cycle changes that have potential to promote self-regeneration or self-fragmentation and (2) external transitions that are situational catastrophic events that evoke great terror and trigger fears of annihilation and chaos, but if successfully negotiated, have potential to promote revitalized sense of self, greater compassion for others, and restored sense of trust and hope in humanity. Concurrently scheduled with course C147. S/U or letter grading.

C248. Dance as Healing and Therapy. (4)

Lecture, two hours; laboratory, two hours; outside study/research, eight hours. Designed for graduate students. Introduction to historical, theoretical, methodological, and ethical considerations involved in practice of dance as healing and therapy. Concurrently scheduled with course C148. Letter grading.

C252. History and Theory of Modern/Postmodern Dance. (4)

Lecture, four hours; studio, two hours; outside study, six hours. Introduction to key figures in creation of modern dance, with special attention to their theories and philosophies and tracing of radical shift to postmodern dance that occurred in mid-20th century. Contemporary developments, both historical and theoretical. Student projects involve choreography and writing. Concurrently scheduled with course C152. S/U or letter grading.

C254. Dance and Folklore. (4)

Lecture, four hours. Consideration of vernacular tradition as site for cultural configuration, social construction, representation, and display of national, ethnic, and other affinity identities. Emphasis on various European and European American dance idioms. Concurrently scheduled with course C154. S/U or letter grading.

C255. Self and Culture. (4) Lecture, two hours; laboratory, two hours; outside study, eight hours. Designed for graduate students. Examination of critical developmental processes and situational factors contributing to construction of sense of self and emergence of creativity and subjective relatedness in different cultural contexts. Concurrently scheduled with course C155. S/U or letter grading.

C256. Frida Kahlo: Creation of Cultural Icon. (5)

Lecture, four hours. Examination of life of renowned Mexican artist Frida Kahlo in light of (1) Mexico's political, religious, and social history that gave rise to *mestizaje* and *machismo*, two social conditions that strongly influenced construction of her *mestiza* and gender identity, as well as her revolutionary political ideals, (2) obstacles that 20th-century female artists living in patriarchal societies had to confront, (3) way her significant attachments influenced her construction of subjective sense of self and kinds of artwork she produced, (4) transcendent and self-regulatory functions her self-portraits served in maintaining her emotional equilibrium, (5) conversion of Kahlo's image after her death into cultural icon by culturally disenfranchised groups, and (6) psychosocial conditions and processes that tend to promote creation of cultural icons. Concurrently scheduled with course C156. S/U or letter grading.

C264. Public Writing in Arts. (4)

Lecture, four hours; outside study, eight hours. Survey of journalistic approaches to writing about arts, with eye toward shaping critique of public writing practices and putting that critique into practice. Exploration of new modes of (and venues for) writing that rebalance power differential between art makers and commentators. Concurrently scheduled with course C164. S/U or letter grading.

C268. Beyond Academia: Making Art in Real World. (4)

Lecture, four hours; outside study, eight hours. Designed for graduate students. Focus on understanding bureaucratic structures and regional histories conditioning creation of art in real world, including such practical issues as publicity and grant-writing. Concurrently scheduled with course C168. S/U or letter grading.

C273. Sound Resources for Performance. (4)

Lecture, three hours; studio, one hour; outside study, eight hours. Designed for graduate students. Exploration of music, in search of interesting, new, and unusual. Investigation of musical possibilities via record store, Internet, and music library; environmental sounds and patterns; body (clapping, stepping, and singing); and hardware store (found sound). Participants collaborate with fellow students in creative efforts and in presentations of research results. Concurrently scheduled with course C173. S/U or letter grading.

C275. Applied Folklore. (4)

Lecture, four hours. Designed for graduate students. Introduction to methods and issues in application of folklore studies to such areas as education, health, museums, organization development, tourism, environmental planning, economic and community development, aging, art therapy, and public sector folklore. Concurrently scheduled with course C175. S/U or letter grading.

C280. Video Production in Arts. (4)

Lecture, one hour; laboratory, three hours. Fundamentals of video production: conceptualization, field recording (camera, lighting, sound, coverage), and editing (organizing raw footage, constructing program, mastering finished tape). Emphasis alternates quarterly between ethnographic documentary and dance/choreography. May be repeated once for credit. Concurrently scheduled with course C180. Letter grading.

C283. Film and Folklore. (4)

Lecture, three hours. Designed for graduate students. Introduction to film criticism and folklore methodology. Topics include early examples of folklore on film, changing conceptions of folklore and uses of films about folklore, and examples of films by, with, and for folklorists. Concurrently scheduled with course C183. S/U or letter grading.

375. Teaching Apprentice Practicum. (1 to 4)

Seminar, to be arranged. Preparation: apprentice personnel employment as teaching assistant, associate, or fellow. Teaching apprenticeship under active guidance

and supervision of regular faculty member responsible for curriculum and instruction at UCLA. May be repeated for credit. S/U grading.

400. Directed Professional Activities. (2 to 8) Lecture, to be arranged. Directed projects in professional editing, bibliography, filmography, videography, conference and festival direction, and other professional activities. May not be applied toward M.A. degree requirements. May be repeated. S/U grading.

C406A. Advanced World Arts Practices in Sub-Saharan Africa and Diaspora. (2) Studio, three hours; outside study, three hours. Advanced-level study of world arts practices originating from sub-Saharan Africa and African diaspora. Variable topics and genres, such as West Africa (Burkina Faso, Mali, Guinea, Senegal) and diaspora (Haiti, Brazil, Caribbean, Cuba), including cultural and historical context. May be repeated for credit without limitation. Concurrently scheduled with course C106A. S/U or letter grading.

C409A. Advanced World Arts Practices in North America and Diaspora. (2) Studio, three hours; outside study, three hours. Advanced-level study of world arts practices originating from North America, including U.S., Canada, and Native America. Variable topics, such as Native American dance, jazz, and jazz-tap, in cultural and historical context. May be repeated for credit without limitation. Concurrently scheduled with course C109A. S/U or letter grading.

C413A. Advanced World Arts Practices in Europe and Diaspora. (2) Studio, three hours; outside study, three hours. Advanced-level study of world arts practices originating from Europe and extending to cultures of European diaspora, including U.S. Variable topics, such as flamenco, Balkan folk dances, and classical ballet, in cultural and historical context. May be repeated for credit without limitation. Concurrently scheduled with course C113A. S/U or letter grading.

C415. Advanced Modern/Postmodern Dance. (2) Studio, six hours. Prerequisite: course 65. Studies in advanced modern/postmodern dance technique, with emphasis on performing skills. May be repeated for credit without limitation. Concurrently scheduled with course C115. S/U or letter grading.

441. Dance Production Practicum. (2 to 4) Laboratory, four to eight hours (one or two hours may be individualized consultation). Skills and understanding of production components in roles of stage manager, production assistants, and producer. May be repeated for maximum of 8 units. S/U grading.

451. Teaching Assistant Seminar. (2) Seminar, one hour; laboratory, three hours. Required of all World Arts and Cultures Department teaching assistants. Lectures, discussion, readings, and practice teaching. May be repeated once for credit. S/U grading.

452. Directed Field Study in Dance Education. (2 to 8) Seminar, one hour; field study, two hours minimum. Directed field study to provide teaching experience in community school or other approved site. No more than 4 units may be applied toward M.A. degree requirements. S/U grading.

478. Advanced Private Instruction in World Arts and Cultures. (2 to 8) Studio, three to 12 hours; outside study, three to 12 hours. Private or semiprivate instruction with distinguished community-based artist to be arranged by students and approved by instructor. May be repeated for maximum of 24 units. S/U grading.

480. Seminar: Research Topics. (2) Seminar, two hours. Forum in which faculty, students, and visitors make presentations and obtain feedback on research being planned, conducted, or recently completed. Students required to make one presentation each term they are enrolled for credit. May be repeated for maximum of 8 units. S/U grading.

490. Projects in Choreography and Performance. (2 to 8) Tutorial, one three-hour rehearsal per unit per week minimum. Creation, casting, and rehearsing of culminating concert, reflecting professional achievement in choreography or performance, in first term. In second term, direction of on-stage rehearsals for culminating concert by each student leading to fully staged performance. May be repeated for maximum of 16 units. S/U or letter grading.

495. Teacher Preparation in World Arts and Cultures. (2) Seminar, two hours. Directed work in preparation of course syllabi and discussion of topics relevant to developing teaching skills. Fundamental principles and methods with which to design course syllabi and gather resources for courses. Topics include development of teaching philosophy, evaluating/selecting course content, teaching methodologies, assessment/evaluation/grading practices, and consideration of practical, administrative, and ethical issues. Students meet with instructor to review their specific needs as they progress in development and elaboration of course plans. Microteaching sessions provide context for applying concepts and principles discussed. S/U grading.

498. Professional Internship in Dance. (4, 8, or 12) Seminar, to be arranged. Full- or part-time supervised fieldwork. Limited to M.F.A. students. Internship in dance, theater, film, or television organization. Participation in creative, administrative, or technical work of professionals in their specialties. S/U or letter grading.

596A. Directed Individual Study or Research. (2 to 8) Tutorial, to be arranged. S/U or letter grading.

596R. Directed Study or Research in Hospital or Clinic. (2 to 8) Tutorial, to be arranged. S/U grading.

597. Preparation for Master's Comprehensive Examination or Ph.D. Qualifying Examination. (2 to 8) Tutorial, to be arranged. Preparation for M.A. or M.F.A. comprehensive examination or Ph.D. qualifying examination. S/U grading.

598. Research for and Preparation of Master's Thesis. (2 to 8) Tutorial, to be arranged. Research for and preparation of M.A. or M.F.A. thesis. S/U grading.

599. Research for and Preparation of Ph.D. Dissertation. (2 to 12) Tutorial, to be arranged. Preparation of research data and writing of Ph.D. dissertation. May be repeated for credit. S/U grading.

Appendixes

APPENDIX A: REGULATIONS AND POLICIES

Nondiscrimination

The University of California, in accordance with applicable Federal and State Laws and University Policies, does not discriminate on the basis of race, color, national origin, religion, sex, gender identity, pregnancy (including pregnancy, childbirth, and medical conditions related to pregnancy and childbirth), physical or mental disability, medical condition (cancer-related or genetic characteristics), ancestry, marital status, age, sexual orientation, citizenship, or service in the uniformed services (including membership, application for membership, performance of service, application for service, or obligation for service in the uniformed services). The University also prohibits sexual harassment. This nondiscrimination policy covers admission, access, and treatment in University programs and activities.

Inquiries regarding the University's student-related nondiscrimination policies may be directed to the UCLA Campus Counsel, 3149 Murphy Hall, Box 951405, Los Angeles, CA 90095-1405, (310) 825-4042.

Inquiries regarding nondiscrimination on the basis of disability covered by the Americans with Disabilities Act (ADA) of 1990 or Section 504 of the Rehabilitation Act of 1973 may be directed to Monroe Gorden, ADA and 504 Compliance, A239 Murphy Hall, UCLA, Box 951405, Los Angeles, CA 90095-1405, voice (310) 825-1514, TTY (310) 206-3349; <http://www.ada.ucla.edu>.

Students may complain of any action which they believe discriminates against them on the ground of race, color, national origin, marital status, sex, sexual orientation, disability, or age and may contact the Office of the Dean of Students, 1206 Murphy Hall, and/or refer to Section 111.00 of the *University of California Policies Applying to Campus Activities, Organizations, and Students* (available in 1206 Murphy Hall or at <http://www.ucop.edu/ucophome/coordrev/ucpolicies/aos/toc.html>) for further information and procedures.

Student Conduct Policies

Students are members of both society and the academic community with attendant rights and responsibilities. Students are expected to make themselves aware of and comply with the law, and with University and campus policies and regulations. While many of UCLA's policies and regulations parallel federal, state, and local laws, UCLA's standards may be set

higher. The *University of California Policies Applying to Campus Activities, Organizations, and Students* (UC Policies) have been incorporated into the *UCLA Student Conduct Code* either by adapting or inserting verbatim the language of the policies. The complete *University of California Policies Applying to Campus Activities, Organizations, and Students* is available at <http://www.ucop.edu/ucophome/coordrev/ucpolicies/aos/toc.html>. Students may contact the Office of the Dean of Students, Office of Ombuds Services, or Student Legal Services for advice concerning these policies.

A. Jurisdiction

The University has jurisdiction over student conduct that occurs on University property, or in connection with official University functions whether on or off University property. Although the University will not routinely invoke its disciplinary processes over student conduct that occurs off campus except in connection with an official University function, the University has discretion to exercise jurisdiction over conduct that occurs off campus and that would violate student conduct and discipline policies or regulations if the conduct had occurred on campus when (1) the alleged misconduct indicates the student poses a threat to the safety or security of any member(s) of the University community or (2) the alleged misconduct involves academic work or the forgery, alteration, or misuse of any University document, record, key, electronic device, or identification.

Specifically, the University may choose to exercise jurisdiction over off-campus incidents under alternative A.1 above where the alleged misconduct involves

- Conduct that threatens the health or safety of any person, including oneself. This conduct includes, but is not limited to, physical assault, sexual assault, sexual misconduct, domestic violence, threats that cause a person reasonably to be in sustained fear for one's own safety or the safety of her or his immediate family, incidents involving the use or display of a weapon likely to cause great bodily harm, and intoxication or impairment through the use of alcohol or controlled substances to the point one is unable to exercise care for one's own safety
- Stalking (as defined in Section 102.10 of the *University of California Policies Applying to Campus Activities, Organizations, and Students*)
- Sexual harassment (as defined in Section 160.00 et seq. of the *University of California Policies Applying to Campus Activities, Organizations, and Students*)
- Participation in hazing or any method of initiation or preinitiation into a campus or-

ganization or other activity engaged in by the organization or members of the organization at any time that causes, or is likely to cause, physical injury or personal degradation or disgrace resulting in psychological harm to any student or other person

In determining whether or not to exercise off-campus jurisdiction in cases under alternative A.1 above, the University will consider the seriousness of the alleged misconduct; whether the alleged victim is a member of the campus community; the ability of the University to gather information, including the testimony of witnesses; or whether the off-campus conduct is part of a series of actions that occurred both on and off campus.

This section is intended only to provide guidance for the exercise of discretion by the University in invoking its jurisdiction over conduct that occurs off campus. It may not be relied upon by any student charged under this section to create any rights, substantive or procedural, or as a basis for a challenge to the exercise of the University's jurisdiction.

B. Types of Misconduct

Students may be disciplined for violations or attempted violations (including aiding, abetting, or participating in the planning of an act that would be in violation of the *UCLA Student Conduct Code*, whether or not the individual who carries out that act is a student). Violations include the following types of misconduct:

102.01: Academic Dishonesty. All forms of academic misconduct, including but not limited to cheating, fabrication, plagiarism, multiple submissions, or facilitating academic misconduct. For the purposes of the *UCLA Student Conduct Code*, the following definitions apply:

102.01a: Cheating. Cheating includes, but is not limited to, the use of unauthorized materials, information, or study aids in any academic exercise; the alteration of any answers on a graded document before submitting it for regrading; or the failure to observe the expressed procedures or instructions of an academic exercise (e.g., examination instructions regarding alternate seating or conversation during an examination).

102.01b: Fabrication. Fabrication includes, but is not limited to, falsification or invention of any information or citation in an academic exercise.

102.01c: Plagiarism. Plagiarism includes, but is not limited to, the use of another's words or ideas as if they were one's own, including but not limited to representing, either with the intent to deceive or by the omission of the true source, part of or an entire work produced by someone other than the student, obtained by

purchase or otherwise, as the student's original work or representing the identifiable but altered ideas, data, or writing of another person as if those ideas, data, or writing were the student's original work.

102.01d: Multiple Submissions. Multiple submissions includes, but is not limited to, the resubmission by a student of any work which has been previously submitted for credit in identical or similar form in one course to fulfill the requirements of a second course, without the informed permission/consent of the instructor of the second course; or the submission by a student of any work submitted for credit in identical or similar form in one course to fulfill the requirements of a concurrent course, without the permission/consent of the instructors of both courses.

102.01e: Facilitating Academic Dishonesty. Facilitating academic dishonesty includes, but is not limited to, knowingly helping another student commit an act of academic misconduct (e.g., cheating, fabrication, plagiarism, multiple submissions).

102.01f: Coercion Regarding Grading or Evaluation of Coursework. Threatening personal or professional repercussions or discipline against an instructor to coerce the instructor to change a grade or otherwise evaluate the student's work by criteria not directly reflective of coursework.

102.02: Other Forms of Dishonesty. Other forms of dishonesty, including but not limited to fabricating information or knowingly furnishing false information or reporting a false emergency to the University.

102.03: Forgery. Forgery, alteration, or misuse of any University document, record, key, electronic device, or identification.

102.04: Theft. Theft of, conversion of, misappropriation of, or damage to or destruction of any property of the University or property of others while on University premises or at official University functions; or possession of any property when the student had knowledge or reasonably should have had knowledge that it was stolen.

102.05: Computer Misuse. Theft or abuse of University computers and other University electronic resources such as computer and electronic communications facilities, systems, and services. Abuses include, but are not limited to, unauthorized entry, use, transfer, or tampering with the communications of others; interference with the work of others and with the operation of computer or electronic communications facilities, systems, and services; or violations of copyright laws, whether by theft, unauthorized sharing, or other misuse of copyrighted materials such as songs, movies, software, photos, or text. Violation of the *UCLA E-Mail Policy and Guidelines* (available at <http://www.adminpolicies.ucla.edu/app/Default.aspx?id=455>), of the *University of California Electronic Communications Policy*

(available at <http://www.ucop.edu/ucophome/policies/ec/>), or of any other University acceptable or allowable use policy is also considered a violation of Section 102.05.

102.06: Unauthorized Use of University Resources or Name. Unauthorized entry to, possession of, receipt of, or use of any University services, equipment, resources, or properties, including the University's name, insignia, or seal.

102.07: Unauthorized Use of University Housing and Parking.

102.07a: University Housing. Violation of policies, regulations, or rules governing University-owned, -operated, or -leased housing facilities or other housing facilities located on University property.

102.07b: Parking. Violation of policies, regulations, or rules governing University parking services or University-owned or -operated parking facilities.

102.08: Conduct that Threatens Health or Safety. Conduct that threatens the health or safety of any person, including oneself. This includes, but is not limited to, physical assault, sexual assault, sexual misconduct, domestic violence, threats that cause a person reasonably to be in sustained fear for one's own safety or the safety of her or his immediate family, incidents involving the use or display of a weapon likely to cause great bodily harm, and intoxication or impairment through the use of alcohol or controlled substances to the point one is unable to exercise care for one's own safety.

Sexual Assault occurs when a person knowingly causes another person to engage in a sexual act by (a) physical force, violence, threat, intimidation, and/or coercion; (b) ignoring the objections of the other person; (c) causing the other's intoxication or impairment through the use of drugs or alcohol; or (d) taking advantage of the other person's incapacitation, state of intimidation, helplessness, or other inability to consent. Situations involving physical force, violence, threat, intimidation, and/or coercion fall under the definition of Sexual Assault.

Sexual Misconduct occurs when a person, having failed to take appropriate steps to gain effective consent, engages in a sexual act with another under the unreasonable belief that effective consent had been obtained. NOTE: For the purpose of this regulation, the following apply:

1. "Effective consent" referenced in the terms above means words or actions that show a voluntary agreement to engage in a mutually agreed-upon sexual activity.
2. "Sexual act" referenced in the terms above includes, but is not limited to, sexual intercourse, sodomy, oral-genital contact, or sexual penetration with a foreign object (including a finger), the touching of a person's intimate parts (defined as genitalia,

groin, breast, or buttocks, or clothing covering them), or compelling a person to touch her or his own or another person's intimate parts without effective consent.

3. Intoxication of the accused will not diminish her or his responsibility for any violations of this section.

102.09: [Interim]. Sexual, racial, and other forms of harassment, defined as follows:

Harassment is defined as conduct that is so severe and/or pervasive, and objectively offensive, in that so substantially impairs a person's access to University programs or activities, that the person is effectively denied equal access to the University's resources and opportunities on the basis of her or his race, color, national or ethnic origin, alien niche, sex, religion, age, sexual orientation, gender identity, marital status, veteran status, physical or mental disability, or perceived membership in any of these classifications.

Student Employees. When employed by the University of California, and acting within the course and scope of that employment, students are subject to the University of California *Policy on Sexual Harassment*. Otherwise, Section 102.09 above is the applicable standard for harassment by students.

For both student and/or employee sexual harassment, refer to the *University of California Procedures for Responding to Reports of Sexual Harassment*.

102.10: Stalking. Stalking behavior in which a student repeatedly engages in a course of conduct directed at another person and makes a credible threat with the intent to place that person in reasonable fear for her or his safety, or the safety of her or his family; where the threat is reasonably determined by the University to seriously alarm, torment, or terrorize the person; and where the threat is additionally determined by the University to serve no legitimate purpose.

102.11: [Deleted—See 102.09].

102.12: Hazing. Participation in hazing or any method of initiation or preinitiation into a campus organization or other activity engaged in by the organization or members of the organization at any time that causes, or is likely to cause, physical injury or personal degradation or disgrace resulting in psychological harm to any student or other person.

102.13: Obstruction or Disruption. Obstruction or disruption of teaching, research, administration, disciplinary procedures, or other University activities.

102.14: Disorderly Conduct. Engaging in disorderly or lewd conduct.

102.15: Disturbing the Peace. Participation in a disturbance of the peace or unlawful assembly.

102.16: Failure to Comply. Failure to identify oneself to, or comply with directions of, a Uni-

versity official or other public official acting in the performance of her or his duties while on University property or at official University functions, or resisting or obstructing such University or other public officials in the performance of or the attempt to perform their duties.

102.17: Controlled Substances. Unlawful manufacture, distribution, dispensing, possession, use, or sale of, or the attempted manufacture, distribution, dispensing, or sale of controlled substances, identified in Federal and State laws or regulations, or being unable to exercise care for one's own safety or the safety of others because one is under the influence of controlled substances. NOTE: This provision shall not apply to circumstances wherein the person under the influence was given a controlled substance without her or his knowledge and permission.

102.18: Alcohol. Manufacture, distribution, dispensing, possession, use, or sale of, or the attempted manufacture, distribution, dispensing, or sale of alcohol which is unlawful or otherwise prohibited by, or not in compliance with, University policy or campus regulations, or being unable to exercise care for one's own safety or the safety of others because one is under the influence of alcohol. NOTE: This provision shall not apply to circumstances wherein the person under the influence was given alcohol without her or his knowledge and permission.

102.19: Destructive Devices. Possession, use, storage, or manufacture of explosives, firebombs, or other destructive devices.

102.20: Weapons. Except as expressly permitted by law, possession, use, storage, or manufacture of a firearm or other weapon capable of causing bodily injury. Except as expressly permitted by University policy, possession, use, storage, or manufacture of replicas of firearms or other weapons.

102.21: Violation of Disciplinary Conditions. Violation of the conditions contained in the terms of a disciplinary action imposed under the *UCLA Student Conduct Code*.

102.22: Violation of Interim or Emergency Suspension Conditions. Violation of the conditions contained in a written Notice of Interim or Emergency Suspension issued pursuant to Section IV of the *UCLA Student Conduct Code*.

102.23: Unauthorized Use or Sale of University Materials. Except as provided herein, no student shall give, sell, or otherwise distribute to others or publish any recording made during any course presentation without the written consent of the University and the instructor/presenter. This policy is applicable to any recording in any medium, including handwritten or typed notes.

Any distribution of a recording of a course presentation at UCLA that captures the actual sounds and/or images of that course presentation, in any medium, must consider not only

the rights of the instructor and the University, but also those of other parties. Examples include the privacy rights of students enrolled in the course, the rights of guest lecturers, and the copyright interests in materials authored by others that are displayed or presented during the course presentation. In addition to the consent of the University and the instructor/presenter, it may be necessary to secure permission from these other parties before any recording, distribution, publication, or communication is legally permitted.

102.23a: Selling Course Notes. Selling, preparing, or distributing for any commercial purpose course lecture notes or video or audio recordings of any course unless authorized by the University in advance and explicitly permitted by the course instructor in writing. The unauthorized sale or commercial distribution of course notes or recordings by a student is a violation of the *UCLA Student Conduct Code* whether or not it was the student or someone else who prepared the notes or recordings. This policy is applicable to any recording in any medium, including handwritten or typed notes.

102.23b: Copying Course Notes. Copying for any commercial purpose handouts, readers, or other course materials provided by an instructor as part of a University of California course unless authorized by the University in advance and explicitly permitted by the course instructor or the copyright holder in writing (if the instructor is not the copyright holder). Students currently enrolled in a course may provide a copy of their own notes or recordings to other currently enrolled students for noncommercial purposes reasonably arising from participation in the course, including individual or group study.

102.23c: Commencement Tickets. Selling commencement tickets.

102.24: University Properties. Organizing or carrying out unlawful activity on University properties.

102.25: Violations of Law. Violation of Federal, State, or local laws.

Sexual Assault and Sexual Misconduct

UCLA does not tolerate sexual assault or sexual misconduct. Where there is probable cause to believe a student has committed a sexual assault or has engaged in sexual misconduct, disciplinary action will be pursued. Sanctions may include dismissal from the University.

If a Person Has Been Sexually Assaulted

Those who believe that they are the victims of sexual assault should

1. **Immediately call the police department.** If possible, call the UCLA Police Department at (310) 825-1491 or 911

2. **Get medical attention.** Campus police will provide transportation to the Santa Monica UCLA Medical Center Emergency Room for emergency medical treatment and evidence collection. A counselor from the Rape Treatment Center will be available at that time, free of charge

Utilize campus and community support services:

1. **Contact a Rape Services Consultant (RSC)** at Counseling and Psychological Services. RSCs have expertise in working with people who have been sexually assaulted. They can discuss options and alternatives, help identify the most appropriate support services, and provide information about medical care, psychological counseling, academic assistance, legal options, how to file a police report, and how to file a complaint through the Office of the Dean of Students. RSCs are available to assist any UCLA student regardless of where or when the assault occurred. For assistance, contact Counseling and Psychological Services at (310) 825-0768 or go to 221 Wooden Center West and ask to speak to an RSC.
2. **Contact the Rape Treatment Center** at Santa Monica UCLA Medical Center (310-319-4000) for free emergency medical treatment and counseling services. See <http://www.911rape.org>.

Caring assistance is available for persons who have been subjected to sexual assault or sexual misconduct. They are encouraged in the strongest terms to make a report.

Harassment

Sexual Harassment

The University of California is committed to creating and maintaining a community where all persons who participate in University programs and activities can work and learn together in an atmosphere free from all forms of harassment, exploitation, or intimidation. Every member of the University community should be aware that the University is strongly opposed to sexual harassment and that such behavior is prohibited both by law and by University policy. The University will respond promptly and effectively to reports of sexual harassment and will take appropriate action to prevent, correct and, if necessary, discipline behavior that violates this policy. See <http://www.sexualharassment.ucla.edu>.

Definitions

For detailed definitions of **sexual harassment**, refer to Section 102.09 of the *UCLA Student Conduct Code* listed above.

Complaint Resolution

Experience has demonstrated that many complaints of sexual harassment can be effectively resolved through informal intervention. Individuals who experience what they consider to be

sexual harassment are advised to confront the alleged offender immediately and firmly.

Additionally, an individual who believes that she or he has been sexually harassed may contact the Sexual Harassment Coordinator in 2241 Murphy Hall or a Sexual Harassment Information Center counselor for help and information regarding sexual harassment complaint resolution or grievance procedures at one of the locations listed below as determined by the complainant's status at the University at the time of the alleged incident:

1. Campus Human Resources/Employee and Labor Relations, Manager, 200 UCLA Wilshire Center, (310) 794-0860
2. Campus Human Resources/Staff and Faculty Counseling Center, Coordinator, 380 UCLA Wilshire Center, (310) 794-0248
3. Center for Student Programming, Associate Director, 105 Kerckhoff Hall, (310) 206-8817
4. Chancellor's Office, Sexual Harassment Coordinator, 2241 Murphy Hall, (310) 206-3417
5. Counseling and Psychological Services, Director, 221 Wooden Center West, (310) 825-0768
6. David Geffen School of Medicine, Dean's Office, Special Projects Director, 12-138 Center for the Health Sciences, (310) 794-1958
7. Graduate Division, Office Manager, 1237 Murphy Hall, (310) 206-3269
8. Healthcare Human Resources, Employee Relations Manager, 400 UCLA Wilshire Center, (310) 794-0500
9. Lesbian Gay Bisexual Transgender Campus Resource Center, Director, B36 Student Activities Center, (310) 206-3628
10. Office of the Dean of Students, Assistant Dean of Students, 1206 Murphy Hall, (310) 825-3871
11. Office of Ombuds Services, 105 Strathmore Building, (310) 825-7627; 52-025 Center for the Health Sciences, (310) 206-2427
12. Office of Residential Life, Judicial Affairs Coordinator, 205 Bradley Hall, (310) 825-3401
13. Resnick Neuropsychiatric Hospital, Administration/Human Resources Associate Director, B7-370 Semel Institute, (310) 206-5258
14. School of Dentistry, Assistant Dean, Student Affairs, A0-111 Dentistry, (310) 825-2615
15. Student Legal Services, Director, A239 Murphy Hall, (310) 825-9894
16. UCLA Extension, Human Resources Director, 629 UNEX Building, (310) 825-

4287; Student Services Director, 214 UNEX Building, (310) 825-2656

Other Forms of Harassment

The University strives to create an environment that fosters the values of mutual respect and tolerance and is free from discrimination based on race, ethnicity, sex, religion, sexual orientation, disability, age, and other personal characteristics. Certainly harassment, in its many forms, works against those values and often corrodes a person's sense of worth and interferes with one's ability to participate in University programs or activities. While the University is committed to the free exchange of ideas and the full protection of free expression, the University also recognizes that words can be used in such a way that they no longer express an idea, but rather injure and intimidate, thus undermining the ability of individuals to participate in the University community. The *University of California Policies Applying to Campus Activities, Organizations, and Students* (hereafter referred to as *Policies*; <http://www.ucop.edu/ucophome/coordrev/ucpolicies/aos/toc.html>) presently prohibit a variety of conduct by students which, in certain contexts, may be regarded as harassment or intimidation.

For example, harassing expression which is accompanied by physical abuse, threats of violence, or conduct that threatens the health or safety of any person on University property or in connection with official University functions may subject an offending student to University discipline under the provisions of Section 102.08 of the *Policies*.

Similarly, harassing conduct, including symbolic expression, which also involves conduct resulting in damage to or destruction of any property of the University or property of others while on University premises may subject a student violator to University discipline under the provisions of Section 102.04 of the *Policies*.

Further, under specific circumstances described in the *Universitywide Student Conduct Harassment Policy* (<http://www.deanofstudents.ucla.edu>), students may be subject to University discipline for misconduct which may consist solely of expression. Copies of this *Policy* are available in the Office of the Dean of Students, 1206 Murphy Hall, or in any of the Harassment Information Centers listed below:

1. Counseling and Psychological Services, 221 Wooden Center West, (310) 825-0768, <http://www.counseling.ucla.edu>
2. Dashew Center for International Students and Scholars, 106 Bradley Hall, (310) 825-1681, <http://www.internationalcenter.ucla.edu>
3. Office of Fraternity and Sorority Relations, 105 Kerckhoff Hall, (310) 825-6322, <http://www.greeklife.ucla.edu>
4. Office of Ombuds Services, 105 Strathmore Building, (310) 825-7627, <http://www.ombuds.ucla.edu>

5. Office of Residential Life, 205 Bradley Hall, (310) 825-3401, <http://www.orl.ucla.edu>

Complaint Resolution

One of the necessary measures in our efforts to assure an atmosphere of civility and mutual respect is the establishment of procedures which provide effective informal and formal mechanisms for those who believe that they have been victims of any of the above misconduct.

Many incidents of harassment and intimidation can be effectively resolved through informal means. For example, an individual may wish to confront the alleged offender immediately and firmly. An individual who chooses not to confront the alleged offender and who wishes help, advice, or information is urged to contact any of the Harassment Information Centers listed immediately above.

In addition to providing support for those who believe they have been victims of harassment, Harassment Information Centers offer persons the opportunity to learn about the phenomena of harassment and intimidation; to understand the formal and informal mechanisms by which misunderstandings may be corrected and, when appropriate, student perpetrators may be disciplined; and to consider which of the available options is the most useful for the particular circumstances.

With regard to the *Universitywide Student Conduct Harassment Policy*, complainants should be aware that not all conduct which is offensive may be regarded as a violation of this *Policy* and may, in fact, be protected expression. Thus, the application of formal institutional discipline to such protected expression may not be legally permissible. Nevertheless, the University is committed to reviewing any complaint of harassing or intimidating conduct by a student and intervening on behalf of the complainant to the extent possible.

Faculty Code of Conduct

The entire Faculty Code of Conduct can be found in the *UCLA Faculty Handbook* (copies are available in the Academic Personnel Office, 3109 Murphy Hall, and at <http://www.apo.ucla.edu/facultyhandbook/9.htm>). Part IIA of the Faculty Code of Conduct outlines faculty obligations to students and reads as follows:

Teaching and Students

Ethical Principles: "As teachers, the professors encourage the free pursuit of learning of their students. They hold before them the best scholarly standards of their discipline. Professors demonstrate respect for students as individuals and adhere to their proper roles as intellectual guides and counselors. Professors make every reasonable effort to foster honest academic conduct and to assure that their evaluations of students reflect each student's true merit. They respect the confidential nature of the relationship between professor and student. They avoid any exploitation, harassment, or discriminatory treatment of students.

They acknowledge significant academic and scholarly assistance from them. They protect their academic freedom.” (from 1966 AAUP statement, revised 1987)

Types of Unacceptable Conduct

Failure to meet the responsibilities of instruction, including (1) arbitrary denial of access to instruction, (2) significant intrusion of material unrelated to the course, (3) significant failure to adhere, without legitimate reason, to the rules of the faculty in the conduct of courses, to meet class, to keep office hours, or to hold examinations as scheduled, (4) evaluation of student work by criteria not directly reflective of course performance, (5) undue and unexcused delay in evaluating student work.

Discrimination, including harassment, against a student on political grounds or for reasons of race, religion, sex, sexual orientation, ethnic origin, national origin, ancestry, marital status, medical condition, status as a covered veteran or, within the limits imposed by law or University regulations, because of age or citizenship or for other arbitrary or personal reasons.

Violation of University policy, including the pertinent guidelines, applying to nondiscrimination against students on the basis of disability.

Use of the position or powers of a faculty member to coerce the judgment or conscience of a student or to cause harm to a student for arbitrary or personal reasons.

Participating in or deliberately abetting disruption, interference, or intimidation in the classroom.

Entering into a romantic or sexual relationship with any student for whom a faculty member has, or should reasonably expect to have in the future, academic responsibility (instructional, evaluative, or supervisory).

Exercising academic responsibility (instructional, evaluative, or supervisory) for any student with whom a faculty member has a romantic or sexual relationship.

Charges of Violation

If a student has reason to believe that a faculty member has violated the Faculty Code of Conduct and that formal discipline may be warranted, the alleged violator should be reported to the chair of the department and to the dean of the division or school with a request that a charge be filed with the Academic Senate Charges Committee. If the dean, in consultation with the vice chancellor of Academic Personnel, determines that there are not sufficient grounds for the administration to file a charge, the student may, after discussing the matter with the Office of Ombuds Services and a member of the Academic Senate Grievance Advisory Committee, file such a charge in person if the student continues to feel it is warranted.

Residence for Tuition Purposes

Students who have not been living in California with intent to make it their permanent home for more than one year immediately before the residence determination date for each term in which they propose to attend the University must pay a nonresident tuition fee in addition to all other fees. The residence determination date is the day instruction begins at the last of the University of California campuses to open for the quarter, and for schools on the semester system, the day instruction begins for the semester.

Laws Governing Residence

The rules regarding residence for tuition purposes at the University of California are governed by the California Education Code and implemented by Standing Order 110.2 of The Regents of the University of California (<http://www.universityofcalifornia.edu/regents/bylaws/so1102.html>). Under these rules adult citizens and certain classes of aliens can establish residence for tuition purposes. There are particular rules that apply to the residence classification of minors (see below).

Who Is a Resident?

Persons who are adult students (at least 18 years of age) may establish residence for tuition purposes in California if (1) they are U.S. citizens, (2) they are permanent residents or other immigrants, or (3) they are nonimmigrants who are not precluded from establishing a domicile in the U.S.

Nonimmigrants who are not precluded from establishing domicile in the U.S. include those who hold valid visas of the following types: A, E, G, H-1, H-4, I, K, L, O-1, O-3, R, T, U, or V. To establish residence students must be physically present in California for more than one year, and they must have come here with the intent to make California their home as opposed to coming to this state to go to school. Physical presence within the state solely for educational purposes does not constitute the establishment of California residence, regardless of the length of stay. Students must demonstrate their intention to make California their home by severing their residential ties with their former state of residence and establishing those ties with California. If these steps are delayed, the one-year durational period is extended until students have demonstrated both presence and intent for one full year. If their parents are not California residents, students are required to be financially independent in order to be a resident for tuition purposes. Their residence cannot be derived from their spouse, registered domestic partner, or their parents.

Requirements for Financial Independence

Students are considered financially independent if one or more of the following apply: (1)

they are at least 24 years of age by December 31 of the calendar year for which they are requesting residence classification; (2) they are a veteran of the U.S. Armed Forces; (3) they are a ward of the court or both parents are deceased; (4) they have legal dependents other than a spouse; (5) they are married, have a registered domestic partner, or are a graduate student or a professional student, and they were not claimed as an income tax deduction by their parents or any other individual for the tax year immediately preceding the term for which they are requesting resident classification; or (6) they are a single undergraduate student and they were not claimed as an income tax deduction by their parents or any other individual for the two tax years immediately preceding the term for which they are requesting resident classification, and they can demonstrate self-sufficiency for two full years prior to the residence determination date of the term they propose to attend the University through their own resources (such as employment, commercial loans, financial aid, and savings that can be officially documented). The two years required for self-support might not coincide with the two tax years during which they must not have been claimed by their parents.

Note: Financial dependence is not a factor in determining residence status for graduate student instructors, graduate student teaching assistants, research assistants, junior specialists, postgraduate researchers, graduate student researchers, and teaching associates who are employed 49 percent or more of full time or awarded the equivalent in University-administered funds (e.g., grants, stipends, fellowships) in the term for which classification is sought.

Establishing Intent to Become a California Resident

Indications of students' intent to make California their permanent residence can include the following: (1) registering to vote and voting in California elections, (2) designating California as their permanent address on all school and employment records, including military records if they are in the military service, (3) obtaining a California driver's license or, if they do not drive, a California Identification Card, (4) obtaining California vehicle registration, (5) paying California income taxes as a resident, including taxes on income earned outside California from the date they establish residence, (6) establishing a California residence in which they keep their personal belongings, and (7) licensing for professional practice in California.

The absence of these indicia in other states during any period for which students claim residence can also serve as an indication of their intent. Documentary evidence is required, and all relevant indications are considered in determining the classification. Intent is questioned if students return to their prior

state of residence when the University is not in session.

General Rules Applying to Minors

If students are unmarried minors (under age 18), the residence of the parent with whom they live is considered to be their residence. If they have a parent living, they cannot change their residence by their own act, by the appointment of a legal guardian, or by the relinquishment of their parent's right of control. If students live with neither parent, their residence is that of the parent with whom they last lived. Unless they are minor aliens present in the U.S. under the terms of a nonimmigrant visa that precludes them from establishing a domicile in the U.S., students may establish their own residence when both their parents are deceased and a legal guardian has not been appointed. If they derive California residence from a parent, that parent must satisfy the one-year durational residence requirement.

Specific Rules Applying to Minors

Divorced or Separated Parents

Minor U.S. citizens or eligible aliens may be able to derive California resident status from a California resident parent if they move to California to live with that parent on or before their 18th birthday. If they begin residing with their California parent after their 18th birthday, they are treated like any other adult student coming to California to establish residence.

Parent of Minor Moves from California

Students may be entitled to resident status if they are minor U.S. citizens or eligible aliens whose parent(s) was a resident of California who left the state within one year of the residence determination date if (1) they remained in California after their parent(s) departed, (2) they enroll in a California public postsecondary institution within one year of their parent(s) departure, and (3) once enrolled, they maintain continuous attendance in that institution. Financial independence is not required in this case.

Two-Year Care and Control

Minor students may be entitled to resident classification if, immediately prior to enrolling in a postsecondary institution, they have been living with and been under the continuous direct care and control of an adult or adults other than a parent for a period of no less than two years. The adult or adults having control must have been residents of California during the one year immediately prior to the residence determination date. The classification continues until students have attained the age of majority and have lived in the state the minimum time necessary to become a resident, so long as continuous full-time attendance is maintained at a postsecondary institution.

Self-Support

If students are U.S. citizens or eligible aliens and are minors who can prove that they lived in California for the entire year immediately before the residence determination date, that

they have been self-supporting for that year, and that they intend to make California their permanent home, they may be eligible for resident status.

Exemptions from Nonresident Tuition

Member of the Military

Members of the U.S. military may be exempt from the nonresident tuition fee unless their assignment to California is for the purpose of attending a state-supported institution of higher education. Graduate and professional students are eligible for this exemption for two years, during which time they must fulfill the UC residence requirements in order to maintain their resident status. They must provide the residence deputy on campus with a statement from their commanding officer or personnel officer stating that their assignment to active duty in California is not for educational purposes. The letter must include the dates of their assignment to the state.

Undergraduate students discharged from military service after having been stationed in California on active duty for at least 366 days are entitled to resident classification for the minimum time necessary to establish residence (366 days). In this case, financial independence is not a requirement.

Some members of the U.S. military may qualify for an exemption from nonresident tuition based on the federal Higher Education Opportunity Act of 2008. Under this Act, undergraduate and graduate students who are members of the U.S. military on active duty for a period of more than 30 days and whose domicile or permanent duty station is in California, are entitled to an exemption from nonresident tuition. Students must be continuously enrolled at the University, notwithstanding a subsequent change in their permanent duty station to a location outside of California.

Spouse, Registered Domestic Partner, or Other Dependents of Military Personnel

Students are exempt from payment of the nonresident tuition fee if they are a spouse, registered domestic partner, or natural or adopted child or stepchild who is a dependent of a member of the U.S. military stationed in California on active duty. Graduate and professional students are eligible for the exemption only until they have resided in the state the minimum time necessary to become a resident (366 days). Students must petition for a waiver of the nonresident tuition fee each term they are eligible. If they are enrolled in an educational institution and the member of the military is transferred on military orders to a place outside California where he or she continues to serve in the Armed Forces, or the member of the military retires from active duty immediately after having served in California on active duty, they may retain this exemption under conditions listed above.

Some dependents of members of the U.S. military may qualify for an exemption from nonresident tuition based on the federal Higher Education Opportunity Act of 2008. Under this Act, undergraduate or graduate students who are the spouse, registered domestic partner, or dependent child of a member of the U.S. military on active duty for a period of more than 30 days and whose domicile or permanent duty station is in California, are entitled to an exemption from nonresident tuition. Students must be continuously enrolled at the University, notwithstanding a subsequent change in the U.S. military member's permanent duty station to a location outside of California.

Child, Spouse, or Registered Domestic Partner of Faculty Member

To the extent funds are available, if students are an unmarried dependent child under age 21, spouse, or registered domestic partner of a member of the University faculty who is a member of the Academic Senate, they may be eligible for a waiver of the nonresident tuition fee. Confirmation of the faculty member's membership on the Academic Senate must be secured each term this waiver is granted.

Child, Spouse, or Registered Domestic Partner of University Employee

Students may be entitled to resident classification if they are an unmarried dependent child, spouse, or registered domestic partner of a full-time University employee whose assignment is outside California (e.g., Los Alamos Scientific Laboratory or University of California Washington, DC, Center). Their parent's, spouse's, or registered domestic partner's employment status with the University must be ascertained each term.

Child, Spouse, or Registered Domestic Partner of Deceased Public Law Enforcement or Fire Suppression Employee

Students may be entitled to a waiver of the nonresident tuition fee if they are the child, spouse, or registered domestic partner of a deceased public law enforcement or fire suppression employee who was a California resident at the time of his or her death and who was killed in the course of fire suppression or law enforcement duties.

Dependent Child of a California Resident

If students have not been an adult resident of California for more than one year and are the natural or adopted dependent child of a California resident who has been a resident for more than one year immediately prior to the residence determination date, they may be entitled to a waiver of the nonresident tuition fee until they have resided in California the minimum time necessary to become a resident, so long as continuous attendance is maintained at an institution.

Native American Graduate of a Bureau of Indian Affairs High School

Students who are graduates of a California high school operated by the federal Bureau of

Indian Affairs may be exempt from the nonresident tuition fee.

Employee of a California Public School District

Students holding a valid credential authorizing service in the public schools of the State of California who are employed by a school district in a full-time certificate position may be exempt from the nonresident tuition fee.

Student Athlete in Training at the U.S. Olympic Training Center, Chula Vista

Any amateur student athletes in training at the U.S. Olympic Training Center in Chula Vista may be exempt from the nonresident tuition fee until they have resided in California the minimum time necessary to become a resident.

Graduate of a California High School

Students who attended high school in California for three or more years (9th grade included) and graduated from a California high school (or attained the equivalent) may be exempt from the nonresident tuition fee. They are not eligible for the exemption if they are a nonimmigrant alien.

Surviving Dependents of California Residents Killed in the September 11, 2001, Terrorist Attacks

Students who are surviving dependents of California residents killed in the September 11, 2001, terrorist attacks may be exempt from the nonresident tuition fee.

Recipients of the Congressional Medal of Honor and Their Children under Age 28

Undergraduate students who are recipients of the Congressional Medal of Honor or who are the children of a recipient may be exempt from the nonresident tuition fee. Recipients must be California residents, and students must be under age 28. Students' annual income must not exceed the national poverty level. If the recipient was a parent who died, the parent must have been a California resident at the time of death.

Temporary Absences

If persons are nonresident students who are in the process of establishing a residence for tuition purposes and they return to their former home during noninstructional periods, their presence in the state is presumed to be solely for educational purposes and only convincing evidence to the contrary rebuts this presumption. Students who are in the state solely for educational purposes are NOT classified as residents for tuition purposes regardless of the length of their stay.

If persons are students who have been classified as residents for tuition purposes and they leave the state temporarily, their absence could result in the loss of their California residence. The burden is on students (or their parents if they are minors) to verify that they did nothing inconsistent with their claim of a continuing California residence during their

absence. Steps that students (or their parents) should take to retain a California residence include the following:

1. Continue to use a California permanent address in all records—educational, employment, military, etc.
2. Continue to satisfy California tax obligations. If students are claiming California residence, they are liable for payment of income taxes on their total income from the date they establish their residence in the state, including income earned in another state or country.
3. Retain a California voter's registration and vote by absentee ballot.
4. Maintain a California driver's license and vehicle registration. If it is necessary to change the driver's license or vehicle registration, students must change them back within the time prescribed by law.

Petition for Resident Classification

Students may obtain a petition at 1113 Murphy Hall or at <http://www.registrar.ucla.edu/forms/residenceclass.pdf> for a change of classification from nonresident to resident status. All changes of status must be initiated at least three weeks in advance of the fee payment deadline for the applicable term.

Time Limitation on Providing Documentation

If additional documentation is required for residence classification but is not readily accessible, students are allowed until the end of the applicable term to provide it.

Incorrect Classification

Students who were incorrectly classified as residents are subject to nonresident classification and to payment of all nonresident tuition fees not paid. If they concealed information or furnished false information and were classified incorrectly as a result, they are also subject to University discipline. Resident students who become nonresidents must immediately notify the residence deputy.

Inquiries and Appeals

Inquiries regarding residence requirements, determination, and/or recognized exceptions should be directed to the Residence Deputy, UCLA Office of the Registrar, 1113 Murphy Hall, Box 951429, Los Angeles, CA 90095-1429 (310-825-3447; <http://www.registrar.ucla.edu/faq/residencefaq.htm>) or to the Senior Paralegal—Residence Matters, 1111 Franklin Street, 8th Floor, Oakland, CA 94607-5200. NO OTHER UNIVERSITY PERSONNEL ARE AUTHORIZED TO SUPPLY INFORMATION RELATIVE TO RESIDENCE REQUIREMENTS FOR TUITION PURPOSES.

Students are cautioned that this summary is NOT a complete explanation of the law regarding residence. Note that changes may be

made in the residence requirements between the publication of this statement and the relevant residence determination date. Any student, following a final decision on residence classification by the residence deputy, may appeal in writing to the senior paralegal within 30 days of notification of the residence deputy's final decision.

Privacy Notice

All of the information requested on the Statement of Legal Residence form is required by the authority of Standing Order 110.2 (a)-(d) of The Regents of the University of California) for determining whether or not students are legal residents for tuition purposes. Registration cannot be processed without this information. The Registrar's Office on campus maintains the requested information. Students have the right to inspect University records containing the residence information requested on the form.

Financial Aid Minimum Progress Standards

Federal regulations require UCLA to establish, publish, and apply standards of satisfactory academic progress for financial aid eligibility. Students who fail to meet minimum progress standards become ineligible to receive financial aid until they are in compliance with the standards. If, during any term, students expect they cannot meet the satisfactory academic progress requirements listed below, they should contact the Financial Aid Office immediately for further advising. See the *Guide to Satisfactory Academic Progress* at <http://www.fao.ucla.edu/publications.html>.

Undergraduate Students

Qualitative Standard

The qualitative standard is enforced by the College or school. Students are notified by their academic department if they fall below the required grade-point average (GPA).

Quantitative Standard

The quantitative standard is enforced by the Financial Aid Office on the basis of the number of units (including remedial courses) successfully completed within any given number of terms, including summer. It may differ from the College/school requirement.

All students receiving aid as full-time students must be enrolled in at least 12 units in order to obtain funds. To be eligible for financial aid as full-time students, they must successfully complete at least 24 units in their first academic year at UCLA to maintain satisfactory academic progress. Thereafter, students must successfully complete 55 units by the end of the sixth term, 86 units by the end of the ninth term, 117 units by the end of the twelfth term, 148 units by the end of the fifteenth term, and 180 units by the end of the eighteenth term.

After 18 terms of enrollment as a full-time student or the equivalent as a part-time student, no further financial aid is granted.

The measurement of progress occurs at the end of each Winter Quarter. The schedule above is adjusted appropriately for students ending an academic year with a different number of terms completed than is listed above. If students enter UCLA in advanced standing, the number of terms for which they are eligible for aid is reduced proportionally to the number of transfer units credited to their record. For example, students who are credited with 90 transfer units would have only 12 terms of financial aid eligibility as an undergraduate at UCLA.

If persons are continuing students at UCLA at the time they apply for financial aid, their progress is measured by the satisfactory academic progress chart to determine their eligibility (i.e., they must have successfully completed 55 units if they attended UCLA for six terms). They would then have only 12 terms of financial aid eligibility.

Changing Major/Double Major/Minor

A change of academic major or the pursuit of a double major or minor does not extend eligibility for financial assistance.

Nonstandard Enrollment

Progress for students approved for part-time enrollment by the Registrar's Office is measured by a modified schedule. Part-time students should inform the Financial Aid Office of their enrollment arrangements so their aid can be adjusted accordingly.

Successful Completion

To successfully complete units, students must receive a grade of A, B, C, D, or P (S for graduate students) in a course. Grades of F, I, NP (U for graduate students), NR (No Report), and DR (Deferred Report) do not earn completed units. An I or DR grade that is replaced with a passing grade does earn units.

Withdrawal and Cancellation

Withdrawal after the first day of classes during a term counts as a term attended when determining overall term and unit count eligibility, unless students do not attend any classes for the given term and receive a 100 percent refund of all fees. Cancellation of registration on or before the first day of classes does not count as a term attended when determining term or unit count eligibility. Administrative cancellation does not count toward the overall term or unit count eligibility.

Disqualification and Reinstatement

The Financial Aid Office monitors satisfactory academic progress annually after Winter Quarter grades are recorded. Progress is measured according to the number of terms students have attended and the number of units they have successfully completed.

Students not meeting the requirements shown on the schedule may receive a warning letter

or have their financial aid suspended. Once deficiencies are satisfied, financial aid may be reinstated.

Financial aid eligibility is reinstated for the term following the term in which students reestablish compliance with the units-per-term schedule. For example, if they successfully complete 16 units in Fall Quarter and therefore make up the deficiency, they become eligible for financial aid in Winter Quarter. Financial aid is then awarded on the basis of their need and the availability of funds.

Appeal Process

Students who fail to meet the satisfactory academic progress standards because of debilitating illness, prolonged hospitalization, death in the immediate family, or other such mitigating circumstances may appeal their disqualification.

To appeal, students should submit a letter and supporting documentation to the Financial Aid Office explaining the circumstances and how they affected their ability to meet the requirements. The satisfactory academic progress appeal coordinator evaluates the request based on the rationale and evidence provided.

Graduate Students

Qualitative Standard

The qualitative standard is enforced by the dean of the Graduate Division in consultation with the department.

Quantitative Standard

Students must successfully complete at least 8 units per term of enrollment to be eligible for financial aid as full-time students. Approved study loads of less than 8 units result in proportionally reduced aid for that term and are charged against the maximum period of eligibility at the appropriate proportional rate.

Disqualification and Appeal Process

If students fail to meet the qualitative and quantitative requirements, their financial aid is discontinued until the deficiencies are made up. Appeals are reviewed by their academic department, the dean of the Graduate Division, and/or the Financial Aid satisfactory academic progress appeal coordinator.

Period of Eligibility

The degree program to which students are admitted determines the maximum number of terms for which they can receive need-based financial aid. Terms for which no need-based aid is received are considered when determining the remaining number of terms of financial aid eligibility.

Students who are in a credential program or a professional master's program (other than Master of Fine Arts) are eligible for a maximum of nine terms of need-based financial aid.

Students who are in a Master of Fine Arts program are eligible to apply for aid for the first 12 terms of enrollment. If students are in an M.A.

or M.S. program, a doctoral program, or a combination master's/doctoral program, their eligibility expires after 27 terms of enrollment. Students who change their program may be accommodated through an extension of terms of eligibility. The extension should be secured at the time the program change is made.

Professional Schools

Students attending the Schools of Dentistry, Law, and Medicine are covered by criteria established by the respective school.

Grading Regulations

Assigning a Grade

The instructor in charge of a course is responsible for determining the grade of each student in the course. The standards for evaluating student performance are based on the course description as approved by the appropriate course committee.

The final grade in the course is based on the instructor's evaluation of the student's achievement in the course. When on an examination or other work submitted by a student, the student is suspected of having engaged in plagiarism or otherwise having cheated, the suspected infraction is to be reported to the appropriate administrative officer of the University for consideration of disciplinary proceedings against the student. Until such proceedings, if any, have been completed, the grade DR (Deferred Report) is assigned for that course. If in such disciplinary proceedings it is determined that the student did engage in plagiarism or otherwise cheat, the administrative officer, in addition to imposing discipline, reports back to the instructor of the course involved, the nature of the plagiarism or cheating. In light of that report, the instructor may replace the grade DR with a final grade that reflects an evaluation of that which may fairly be designated as the student's own achievement in the course as distinguished from any achievement that resulted from plagiarism or cheating.

Grade Complaints

A grade may be appealed, on any reasonable grounds, to the instructor, the chair of the department, and the dean of the division or school.

If the student believes that the instructor has violated the Faculty Code of Conduct by assigning the grade on any basis other than academic grounds, the matter should first be taken up with the instructor. If the matter is not resolved, the student may go for counsel to the Office of Ombuds Services or may follow the procedures for the formal filing of charges (see Faculty Code of Conduct earlier in the Appendix). If a charge is sustained by the Academic Senate Committees on Charges and on Privilege and Tenure, an ad hoc committee is appointed within two weeks to review the disputed grade, and any warranted change is made within four weeks.

Correction of Grades

All grades, except DR, I, and IP, are final when filed by the instructor in the end-of-term course report. However, the Registrar's Office is authorized to change a final grade (1) on written request of an instructor, provided that a clerical or procedural error is the reason for the change or (2) on written request of the chair of the UCLA Academic Senate in cases where it has been determined by the Committee on Privilege and Tenure that an instructor has assigned a grade on any basis other than academic grounds. No change of grade may be made on the basis of reexamination or, with the exception of the I and IP grades, the completion of additional work. Any grade change request made more than one year after the original filing must be validated for authenticity of the instructor's signature by the department chair. Any grade change request made by an instructor who has left the University must be countersigned by the department chair. No grade change may be made once a student has graduated. All grade changes are recorded on the transcript.

Policy on Alternate Examination Dates

In compliance with Section 92640(a) of the California Education Code, the University must accommodate requests for alternate examination dates for any test or examination at a time when that activity would not violate a student's religious creed. This requirement does not apply in the event that administering the test or examination at an alternate time would impose an undue hardship that could not reasonably be avoided. Accommodation for alternate examination dates are worked out directly and on an individual basis between the student and the faculty member involved.

In general, students should make such requests of the instructor during the first two weeks of any given academic term, or as soon as possible after a particular examination date is announced by the instructor.

Students unable to reach a satisfactory arrangement with their instructor should contact the Office of Ombuds Services, 105 Strathmore Building, or the Office of the Dean of Students, 1206 Murphy Hall, for assistance.

Instructors who have questions or who wish to verify the nature of the religious event or practice involved should contact the Office of Ombuds Services or the Office of the Dean of Students for assistance.

Undergraduate Final Examinations

No student shall be excused from assigned final examinations, except as provided above in the policy on alternate examination dates and as provided in the following three paragraphs.

The instructor in charge of an undergraduate course is responsible for assigning the final grade in the course. The final grade shall re-

fect the student's achievement in the course and shall be based on adequate evaluation of that achievement. The instructor's method of evaluation must be announced at the beginning of the course. The methods may include a final written examination, a term paper, a final oral examination, a take-home examination, or other evaluation device. Evaluation methods must be of reasonable duration and difficulty and must be in accord with applicable departmental policies. Final written examinations may not exceed three hours' duration and are given only at the times and places established and published by the department chair and the Registrar's Office.

At the end of the term in which a student is expected to be graduated, a student's major department may examine him or her in the field of the major, may excuse the student from final examinations in courses offered by the department during that term and, with the approval of the Undergraduate Council, assign a credit value to such general examination.

An instructor shall, if he or she wishes, release to individual students their original final examinations (or copies). This may be done by any method that insures the students' right to privacy. Otherwise, the instructor shall retain final examination materials, or a copy thereof, until the end of the next succeeding regular term of instruction, during which period students shall have access to their examinations.

Disclosure of Student Records

Pursuant to the Federal Family Educational Rights and Privacy Act (FERPA), the California Information Practices Act, and the *University of California Policies Applying to the Disclosure of Information from Student Records*, students at UCLA have the right to (1) inspect and review records pertaining to themselves in their capacity as students, except as the right may be waived or qualified under Federal and State Laws and University Policies, (2) have withheld from disclosure, absent their prior written consent for release, personally identifiable information from their student records, except as provided by Federal and State Laws and University Policies, (3) inspect records maintained by UCLA of disclosures of personally identifiable information from their student records, (4) seek correction of their student records through a request to amend the records or, if such request is denied, through a hearing, and (5) file complaints with the U.S. Department of Education regarding alleged violations of the rights accorded them by FERPA.

UCLA, in accordance with Federal and State Laws and University Policies, has designated the following categories of personally identifiable information as "directory information" that UCLA may release and publish without the student's prior consent: name, address (local/ mailing, permanent, and/or e-mail), telephone numbers, major field of study, dates of atten-

dance, enrollment status, grade level, number of course units in which enrolled, degrees and honors received, the most recent previous educational institution attended, participation in officially recognized activities (including intercollegiate athletics), and the name, weight, and height of participants on intercollegiate athletic teams.

Students who do not wish certain items (i.e., name, local/ mailing, permanent, and/or e-mail address, telephone numbers, major field of study, dates of attendance, number of course units in which enrolled, and degrees and honors received) of this "directory information" released and published may so indicate through URSA (<http://www.ursa.ucla.edu>). To restrict the release and publication of the additional items in the category of "directory information," complete the UCLA FERPA Restriction Request form available from the Registrar's Office, 1113 Murphy Hall.

Student records that are the subject of Federal and State Laws and University Policies may be maintained in a variety of offices, including the Registrar's Office, Office of the Dean of Students, UCLA Career Center, Graduate Division, UCLA External Affairs Department, and the offices of a student's College or school and major department. Students are referred to the *UCLA Telephone Directory* (<http://www.directory.ucla.edu>) which lists all the offices that may maintain student records, together with their campus address and telephone number. Students have the right to inspect their student records in any such office subject to the terms of Federal and State Laws and University Policies. Inspection of student records maintained by the Registrar's Office is by appointment only and must be arranged three working days in advance. Call (310) 825-1091, option 6, or inquire at the Registrar's Office, 1113 Murphy Hall.

A copy of the Federal and State Laws, University Policies, and the *UCLA Telephone Directory* may be inspected in the office of the Information Practices Coordinator, 500 UCLA Wilshire Center. Information concerning students' hearing rights may be obtained from that office and from the Office of the Dean of Students, 1206 Murphy Hall.

Undergraduate Retention, Graduation, and Time to Degree

Retention and graduation rates are higher than ever before at UCLA and among the highest for public universities anywhere in the country. Over the past three years, 97 percent of all students entering from high school and 95 percent of all students entering as transfers were still enrolled at UCLA one year later.

Over the past three years, the four-year, five-year, and six-year graduation rates for students entering from high school averaged 68, 87, and 89 percent respectively. Over 91 per-

cent of all entering freshmen eventually graduate from UCLA.

Over the past three years, the two-year, three-year, and four-year graduation rates for entering transfer students have averaged 57, 86, and 90 percent respectively. Over 91 percent of all entering transfer students eventually graduate from UCLA.

Time to degree for UCLA undergraduates has declined significantly over the past decade. In 2008-09 approximately 4,000 baccalaureate degrees were awarded to students who entered directly from high school. The average number of quarters registered at UCLA was 12.1, down from an average of 13.2 quarters for similar graduates in 1998-99. Among recent graduates, 79 percent were registered for 12 quarters or less (i.e., four years or less), 87 percent for 13 quarters or less, 92 percent for 14 quarters or less, and 98 percent for 15 quarters or less (i.e., five years or less).

In 2008-09 approximately 3,100 baccalaureate degrees were awarded to students who entered as transfers. The average number of quarters registered at UCLA was 6.7, down from an average of 7.8 quarters for similar graduates in 1998-99. Among recent graduates, 64 percent were registered for six quarters or less (i.e., two years or less), 76 percent for seven quarters or less, 84 percent for eight quarters or less, and 96 percent for nine quarters or less (i.e., three years or less).

Additional information is available at <http://www.aim.ucla.edu/graduation/graduation.asp>.

Campus Security Information

UCLA Police Department

The UCLA Police Department (UCPD), (310) 825-1491, <http://www.ucpd.ucla.edu>, is located at 601 Westwood Boulevard. The sworn State of California Police Officers are empowered by the State of California with the authority to enforce all state and local laws. UCLA police officers patrol the campus 24 hours a day, 365 days a year. They enforce all applicable local, state, and federal laws, arrest violators, investigate and suppress crime, and provide a full range of police services and community safety programs.

The department is linked by computer to city, state, and federal criminal justice agencies that provide access to information concerning criminal records, wanted persons, stolen property, and vehicle identification. The Detective Bureau handles criminal investigations, and detectives conduct interviews, arrest violators, execute search warrants, and file cases with the Los Angeles District and City Attorney Offices.

Incident Reporting

UCLA police officers have primary jurisdiction over the UCLA campus, Reagan UCLA Medical Center, Center for the Health Sciences, Santa Monica UCLA Medical Center and Or-

thopaedic Hospital, and University Apartments South. The City of Los Angeles Police Department does not handle calls for service on campus or on most UCLA properties. All requests for police service should be made to UCPD. All crime occurring on campus, the Center for the Health Sciences, and other UCLA properties should be reported immediately to the department to ensure appropriate action is taken. Crimes occurring off campus should be reported immediately to the local law enforcement agency. UCPD does take reports from students, faculty, and staff for incidents occurring in the Westwood area.

Police, fire, or medical EMERGENCIES can be reported by dialing **911** from any telephone on campus. All landline telephones (University, private, public) located on University grounds are tied into the 911 emergency system. Emergencies can also be reported by using the blue-hooded or yellow Emergency Reporting Telephones located throughout the campus.

Campus community members are encouraged to program the department number (310-825-1491) into their cell phones. When on campus this number should be used in the event of an emergency to avoid the delay that may occur by the time it takes for the emergency cellular operators to transfer calls to the appropriate jurisdiction.

NONEMERGENCY calls for service can be made by contacting the department at (310) 825-1491.

Crime Statistics and Reports

As required by the Jeanne Clery Disclosure of Campus Security Policy and Campus Crime Statistics Act, UCLA prepares an annual report describing campus security policy and information concerning alcohol and drug use, crime prevention, crime reporting, and related matters. It also includes three years of crime statistics. Printed copies are available by calling (310) 825-1491. The report can be accessed at <http://map.ais.ucla.edu/go/1000958>.

Community Service Officers

UCPD employs approximately 80 student community service officers (CSOs; <http://map.ais.ucla.edu/go/1000050>) who are the additional "eyes and ears" (trained observers) of the department and act as noninterventive visual deterrents to crime. CSOs wear high-visibility uniforms and carry two-way police radios. They are dispatched by the department's Communications Center and provide a direct link to police, fire, and medical aid. CSOs provide security service to a number of campus buildings, including residence halls and libraries. They are most well-known for the Campus Escort Service and the Evening Van Service. The Campus Escort Service (<http://map.ais.ucla.edu/go/1000806>) operates every day of the year from dusk to 1 a.m. (2 a.m. on Thursdays during academic terms). Individuals requesting the service call the Communications

Center at (310) 794-WALK; a CSO is then dispatched to walk them safely to their destination. The service is available to UCLA students, staff, faculty, and visitors and operates on campus and in the nearby residential areas. The Evening Van Service (<http://map.ais.ucla.edu/go/1001008>) provides a safe and convenient mode of transportation around campus at night (Monday through Thursday from 6 to 11 p.m. during academic terms) and is accessible to people with disabilities.

Crime Prevention

An involved community is one of the best defenses against crime. Therefore, the department is committed to a community policing philosophy and supports a proactive Crime Prevention Unit (<http://map.ais.ucla.edu/go/1001449>) that works closely with community members to make UCLA a safer place to work, live, and learn. The unit gives presentations on vehicle and residential security, personal safety, office and equipment security, and sexual assault prevention. Other programs are developed to meet the special needs of the campus community. Brochures and literature on crime prevention and personal safety are available. Counseling and Psychological Services (CAPS) and the Crime Prevention Unit provide presentations on sexual assault issues. Topics include acquaintance rape education and prevention, personal safety and prevention techniques, recovery from sexual assault, clear communications, and the continuum of violence and rape in society. The educational programs, tailored to meet the needs of individual audiences, include films, discussion groups, lectures, role-plays, and communication exercises. CAPS reaches students through the residence halls, sororities, fraternities, athletic teams, student clubs, and various student functions. Services include crisis intervention and advocacy for victims of sexual assault; short-term counseling and referrals for survivors, their families, and friends; support groups for rape survivors; and self-defense classes and a lending library. CAPS works closely with the student housing offices and the police department to increase campus safety.

Several programs have been designed to increase the level of crime awareness and campus safety at UCLA. All incidents of criminal activity that pose a potential threat to the campus are brought immediately to the attention of the community through campus *Crime Alert Bulletins* (<http://map.ais.ucla.edu/go/1001893>). Additionally, those interested in receiving public safety bulletins and news briefs can sign up for the public safety list server at http://lists.ucla.edu/cgi-bin/mailman/listinfo/campus_safety-l.

Emergency Medical Services

UCPD provides emergency medical assistance for the campus community through the Emergency Medical Service program, which is staffed by students certified as emergency

medical technicians (EMTs). As in all emergencies, call 911 for this service.

Alcohol and Substance Abuse Education

Students with alcohol or substance abuse problems create safety and health risks for themselves and others. Such abuses also can result in a wide range of emotional and behavioral problems. Therefore, UCLA makes available to every student a variety of alcohol and substance abuse awareness programs that are designed to discourage the use of illicit substances and to educate students on the merits of legal and responsible alcohol consumption. Counseling and Psychological Services (310-825-0768; <http://www.counseling.ucla.edu>) provides counseling and referral assistance to students who are troubled by alcohol or substance abuse problems. The service is completely confidential and free to regularly enrolled students. All information and counseling is treated in accordance with University Policies and State and Federal Laws. Any decision to seek assistance is not used in connection with any academic determination or as a basis for disciplinary proceedings.

Policies

UCLA is designated as a drug-free environment, and only under certain conditions is alcohol consumption permitted (none is permitted at athletic events). In keeping with its educational mission, the University assumes the responsibility to better inform the UCLA community about alcohol and substance abuse.

The sale, manufacture, distribution, or possession of any controlled substance without a prescription is illegal under both State and Federal Laws. Such laws are strictly enforced by UCLA police officers. Student violators are subject to University disciplinary action, criminal prosecution, fine, and imprisonment. Refer to the UCLA policies on substance abuse for further information.

The sale, consumption, and distribution of alcohol on the UCLA campus is restricted by the UCLA alcohol policy and California State Law. Organizations or groups violating alcohol or substance policies or laws may be subject to sanctions by the University.

Residential Housing

UCLA is the size of a small city and provides residential housing to approximately 11,000 students. Housing facilities range from apartments designed for students with children to multistudent apartment complexes to high-rise student residence halls. UCPD and student housing staff work hand in hand to create a safe and comfortable living and learning environment.

Campuswide security and safety programs for residents are held throughout the year to increase crime potential awareness and improve campus safety. To keep residents immediately informed of major crime or threats to

the campus, *Crime Alert Bulletins* are posted in residential areas by the housing staff. However, residents must take an active role to ensure their own safety by exercising simple commonsense crime prevention techniques. Because the campus is open 24 hours a day, visitation to residence halls and apartments is not restricted. All residence halls have 24-hour access control on entrance doors, and during the evening hours access control monitors are stationed at each entrance. Police officers and CSOs are also assigned to the residence halls.

UCLA-affiliated organizations that maintain off-campus facilities are under the shared jurisdiction of their local police department and the UCLA Police Department, which provides assistance to students, faculty, and staff and/or referrals to neighboring police departments.

Safety Tips

The nature of the studies and research done at UCLA requires many of the campus buildings to be open 24 hours. Because the campus is so large and adjacent to the greater Los Angeles community, individuals with criminal intent are able to access the University grounds. Regardless of the time of day or night and no matter where persons are on campus, they should be alert and aware of their surroundings and exercise good commonsense safety precautions. Anyone parking on campus should remember to lock their vehicles and consider investing in a steering wheel locking device and/or alarm. Take advantage of all of the safety services provided by the University and UCPD. Use the Campus Escort Service when walking at night. Keep room and apartment doors locked at all times. Most important, anyone needing assistance should not hesitate to contact the department.

APPENDIX B: UNIVERSITY ADMINISTRATIVE OFFICERS

Terms of Regents (<http://www.universityofcalifornia.edu/regents/>) appointed by the Governor expire March 1 of the year in parentheses. The Student Regent (Jesse Cheng) and Alumni Regents serve a one-year term beginning July 1 and ending June 30 of the year listed.

Regents Ex Officio

Governor of California
Arnold Schwarzenegger
Lieutenant Governor of California
Abel Maldonado
Speaker of the Assembly
John A. Pérez
State Superintendent of Public Instruction
Jack T. O'Connell

President of the Alumni Associations of the University of California

Rex Hime

Vice President of the Alumni Associations of the University of California

Darek DeFreece

President of the University

Mark G. Yudof

Appointed Regents

Richard C. Blum (2014)
William De La Peña (2018)
Russell S. Gould (2017)
Eddie Island (2017)
Odessa P. Johnson (2012)
George D. Kieffer (2021)
Sherry L. Lansing (2022)
Monica C. Lozano (2013)
Hadi Makarechian (2020)
George M. Marcus (2012)
Norman J. Pattiz (2014)
Bonnie Reiss (2020)
Frederick R. Ruiz (2016)
Leslie Tang Schilling (2013)
Bruce D. Varner (2018)
Paul D. Wachter (2016)
Charlene Zettel (2021)
Jesse Cheng, Student Regent (2011)

Faculty Representatives to the Board of Regents

Daniel L. Simmons
Robert M. Anderson

Staff Advisers to the Board of Regents

Juliann Martinez
Penelope Herbert

Officers of The Regents

President of The Regents
Arnold Schwarzenegger
Chair of The Regents
Russell S. Gould
Vice Chair of The Regents
Sherry L. Lansing
Chief Investment Officer and Acting Treasurer
Marie N. Berggren
General Counsel
Charles F. Robinson
Secretary and Chief of Staff
Diane M. Griffiths
Senior Vice President—Chief Compliance and Audit Officer
Sheryl Vacca

Office of the President

President of the University
Mark G. Yudof
Provost and Executive Vice President—Academic Affairs
Lawrence H. Pitts
Executive Vice President—Business Operations
Nathan Brostrom
Executive Vice President—Chief Financial Officer
Peter J. Taylor
Executive Vice President
Bruce B. Darling

Senior Vice President—External Relations and Vice President—Agriculture and Natural Resources

Daniel M. Dooley

Senior Vice President—Health Sciences and Services

John D. Stobo

Vice President—Budget and Capital Resources

Patrick J. Lenz

Vice President—Human Resources

Dwayne B. Duckett

Vice President—Investments

Marie N. Berggren

Vice President—Legal Affairs

Charles F. Robinson

Vice President—Research and Graduate Studies

Steven V.W. Beckwith

Vice President—Student Affairs

Judy K. Sakaki

Chancellors of the Campuses

Chancellor at Berkeley

Robert J. Birgeneau

Chancellor at Davis

Linda P.B. Katehi

Chancellor at Irvine

Michael V. Drake

Chancellor at Los Angeles

Gene D. Block

Chancellor at Merced

Sung-Mo "Steve" Kang

Chancellor at Riverside

Timothy P. White

Chancellor at San Diego

Marye Anne Fox

Chancellor at San Francisco

Susan Desmond-Hellmann

Chancellor at Santa Barbara

Henry T.Y. Yang

Chancellor at Santa Cruz

George W. Blumenthal

University Professors, UCLA

Robert B. Edgerton, *University Professor*, Los Angeles, Anthropology, Psychiatry and Biobehavioral Sciences

M. Frederick Hawthorne, *University Professor*, Los Angeles, Chemistry and Biochemistry

UCLA Administrative Officers

Chancellor

Gene D. Block, Ph.D.

Executive Vice Chancellor and Provost

Scott L. Waugh, Ph.D.

Administrative Vice Chancellor

Sam J. Morabito, M.B.A.

Vice Chancellor—Academic Personnel

Thomas H. Rice, Ph.D.

Vice Chancellor—External Affairs

Rhea Turteltaub, B.A.

Vice Chancellor—Finance, Budget, and Capital Programs

Steven A. Olsen, M.P.P.

Vice Chancellor—Graduate Studies and Dean of Graduate Division

Claudia Mitchell-Kernan, Ph.D.

Vice Chancellor—Legal Affairs

Kevin S. Reed, J.D.

Vice Chancellor—Health Sciences

A. Eugene Washington, M.D.

Vice Chancellor—Research

Roberto Peccei, Ph.D.

Vice Chancellor—Student Affairs

Janina Montero, Ph.D.

Vice Provost—Faculty Diversity and Development

Rosina M. Becerra, Ph.D.

Vice Provost—Information Technology

James F. Davis, Ph.D.

Vice Provost—Intellectual Property and Industry Relations

Kathryn Ann Atchison, D.D.S., M.P.H.

Vice Provost—International Studies

To be announced

Vice Provost—Undergraduate Education

Judith L. Smith, Ph.D.

University Librarian

Gary Strong, M.L.S.

University Registrar

Anita L. Cotter, M.S.

Dean of Continuing Education and University Extension

Cathy A. Sandeen, Ph.D.

Deans of UCLA College and Schools

School of the Arts and Architecture

Christopher Waterman, Ph.D.

School of Dentistry

No-Hee Park, D.M.D., Ph.D.

Graduate School of Education and Information Studies

Aimée Dorr, Ph.D.

Henry Samueli School of Engineering and Applied Science

Vijay K. Dhir, Ph.D.

School of Law

Rachel F. Moran, J.D.

College of Letters and Science

Division of Humanities

Timothy A. Stowell, Ph.D.

Division of Life Sciences

Victoria L. Sork, Ph.D.

Division of Physical Sciences

Joseph A. Rudnick, Ph.D.

Division of Social Sciences

Alessandro Duranti, Ph.D.

Division of Undergraduate Education

Judith L. Smith, Ph.D.

John E. Anderson Graduate School of Management

Judy D. Olian, Ph.D.

David Geffen School of Medicine

A. Eugene Washington, M.D.

School of Nursing

Courtney H. Lyder, N.D.

School of Public Affairs

Franklin D. Gilliam, Jr., Ph.D.

School of Public Health

Linda Rosenstock, M.D.

School of Theater, Film, and Television

Teri E. Schwartz, M.A.

APPENDIX C: ENDOWED CHAIRS

Although UCLA is a public institution, private gifts are increasingly important in maintaining the quality of the University's three missions of teaching, research, and community service. Among the principal forms of private support are endowed professorships or "chairs," that support the educational and research activities of distinguished members of the faculty.

As this catalog goes to press, UCLA has 340 endowed chairs that have been approved by the Office of the President of the University of California.

See the complete list of endowed chairs at <http://www.registrar.ucla.edu/catalog/UCLA/EndowedChairs1011.pdf>.

APPENDIX D: DISTINGUISHED TEACHING AWARDS

Academic Senate Recipients

Each year the UCLA Alumni Association presents Distinguished Teaching Awards to six Academic Senate faculty members. The highly prized awards are presented at the annual Andrea L. Rich Night to Honor Teaching, and selection of recipients is based on recommendations of the Academic Senate Committee on Teaching. Nominations are solicited from academic departments during Fall Quarter.

The Luckman Distinguished Teaching Awards Program was established in late 1991 after receipt of a generous gift from Harriet and Charles Luckman. Awards given for 1992 through 1997 were named the Luckman Distinguished Teaching Awards.

1961

John F. Barron (*Economics*)

Hector E. Hall (*Physiology*)

Kenneth N. Trueblood (*Chemistry and Biochemistry*)

1962

Charles W. Hoffman (*Germanic Languages*)

Thomas P. Jenkin (*Political Science*)

Ken Nobe (*Chemical Engineering*)

1963

Carl W. Hagge (*Germanic Languages*)

Wendell P. Jones (*Education*)

Robert H. Sorgenfrey (*Mathematics*)

Saul Winstein (*Chemistry and Biochemistry*)

1964

Mostafa A. El-Sayed (*Chemistry and Biochemistry*)

Leon Howard (*English*)

Moshe F. Rubinstein (*Civil and Environmental Engineering*)

1965

E.A. Carlson (*Biology*)

- W.R. Hitchcock (*History*)
 Allen Parducci (*Psychology*)
 William R. Romig (*Microbiology and Molecular Genetics*)
- 1966**
 George A. Bartholomew (*Biology*)
 William P. Gerberding (*Political Science*)
 Hans Meyerhoff (*Philosophy*)
 Joseph E. Spencer (*Geography*)
- 1967**
 Basil Gordon (*Mathematics*)
 J.A.C. Grant (*Political Science*)
 William Matthews (*English*)
 David S. Saxon (*Physics and Astronomy*)
 E.K.L. Upton (*Physics and Astronomy*)
- 1968**
 Edward W. Graham (*Chemistry and Biochemistry*)
 W. James Popham (*Education*)
 Sydney C. Rittenberg (*Microbiology and Molecular Genetics*)
 Robert P. Stockwell (*Linguistics*)
 Fred N. White (*Physiology*)
- 1969**
 Robert J. Finkelstein (*Physics and Astronomy*)
 Douglas S. Hobbs (*Political Science*)
 J.E. Phillips (*English*)
 Raymond M. Redheffer (*Mathematics*)
 Margret I. Sellers (*Microbiology and Immunology*)
- 1970**
 Ehrhard Bahr (*Germanic Languages*)
 Joseph Cascarano (*Biology*)
 B. Lamar Johnson (*Education*)
 Daniel Kivelson (*Chemistry and Biochemistry*)
 Richard D. Lehan (*English*)
- 1971**
 Vernon E. Denny (*Chemical Engineering*)
 Peter N. Ladefoged (*Linguistics*)
 Arthur D. Schwabe (*Medicine*)
 Duane E. Smith (*Political Science*)
 Andreas Tietze (*Near Eastern Languages and Cultures*)
- 1972**
 Barbara K. Keogh (*Education*)
 James N. Miller (*Microbiology and Immunology*)
 David S. Rodes (*English*)
 Ned A. Shearer (*Speech*)
 Charles A. West (*Chemistry and Biochemistry*)
- 1973**
 Kirby A. Baker (*Mathematics*)
 David Evans (*Chemistry and Biochemistry*)
 Albert Hoxie (*History*)
 Nhan Levan (*Electrical Engineering*)
 Judith L. Smith (*Physiological Science*)
- 1974**
 Robert B. Edgerton (*Anthropology, Psychiatry and Biobehavioral Sciences*)
 David S. Eisenberg (*Chemistry and Biochemistry*)
 Victoria A. Fromkin (*Linguistics*)
 Robert C. Neerhout (*Pediatrics*)
 Andrea L. Rich (*Speech*)
- 1975**
 Alma M. Hawkins (*World Arts and Cultures*)
 Morris Holland (*Psychology*)
 Paul M. Schachter (*Linguistics*)
 Stanley A. Wolpert (*History*)
 Richard W. Young (*Neurobiology*)
- 1976**
 Marianne Celce-Murcia (*Teaching English as a Second Language and Applied Linguistics*)
 Jesse J. Dukeminier (*Law*)
 George R. Guffey (*English*)
 Marilyn L. Kourilsky (*Education*)
 Chand R. Viswanathan (*Electrical Engineering*)
- 1977**
 Michael J.B. Allen (*English*)
 Henry M. Cherrick (*Dentistry*)
 Richard C. Maxwell (*Law*)
 J. William Schopf (*Earth and Space Sciences*)
 Verne N. Schumaker (*Chemistry and Biochemistry*)
- 1978**
 William R. Allen (*Economics*)
 Michael E. Jung (*Chemistry and Biochemistry*)
 J. Fred Weston (*Management*)
 Thomas D. Wickens (*Psychology*)
 Johannes Wilbert (*Anthropology*)
- 1979**
 Steven Krantz (*Mathematics*)
 Paul I. Rosenthal (*Communication Studies*)
 Christopher Salter (*Geography*)
 James H. White (*Mathematics*)
 Stephen C. Yeazell (*Law*)
- 1980**
 A.R. Braunmuller (*English*)
 Fredi Chiappelli (*Italian*)
 Kenneth L. Karst (*Law*)
 Richard F. Logan (*Geography*)
 Ronald F. Zernicke (*Physiological Science*)
- 1981**
 Arnold J. Band (*Near Eastern Languages and Cultures*)
 Charles L. Batten, Jr. (*English*)
 Lucien B. Guze (*Medicine*)
 Gerald Lopez (*Law*)
 Andy Wong (*Dentistry*)
- 1982**
 Dean Bok (*Neurobiology*)
 Robin S. Liggett (*Architecture and Urban Design, Urban Planning*)
 William Melnitz (*Theater*)
 Joseph K. Perloff (*Medicine*)
 Karen E. Rowe (*English*)
- 1983**
 Claude Bernard (*Physics and Astronomy*)
 Bryan C. Ellickson (*Economics*)
 Robert S. Elliott (*Electrical Engineering*)
 Albert D. Hutter (*English*)
 Charles M. Knobler (*Chemistry and Biochemistry*)
- 1984**
 Robert Dallek (*History*)
 Hooshang Kangerloo (*Radiological Sciences*)
 Jeffrey Prager (*Sociology*)
 Stanley Siegel (*Law*)
 Sandra A. Thompson (*Linguistics*)
- 1985**
 Patricia M. Greenfield (*Psychology*)
 David F. Martin (*Computer Science*)
 Mark W. Plant (*Economics*)
 Ross P. Shideler (*Scandinavian Section, Comparative Literature*)
 William D. Warren (*Law*)
- 1986**
 Roger A. Gorski (*Neurobiology*)
 Patricia A. Keating (*Linguistics*)
 Leonard Kleinrock (*Computer Science*)
 Martin Wachs (*Urban Planning*)
 Scott L. Waugh (*History*)
- 1987**
 Lawrence W. Bassett (*Radiological Sciences*)
 E. Bradford Burns (*History*)
 Kenneth W. Graham, Jr. (*Law*)
 Howard Suber (*Film and Television*)
 Richard A. Yarborough (*English*)
- 1988**
 Alison G. Anderson (*Law*)
 Ann L.T. Bergren (*Classics*)
 Charles A. Berst (*English*)
 Michael J. Goldstein (*Psychology*)
 Richard L. Sklar (*Political Science*)
- 1989**
 John B. Garnett (*Mathematics*)
 Kathleen L. Komar (*Comparative Literature, Germanic Languages*)
 William G. Roy (*Sociology*)
 Stephen Yenser (*English*)
 Eric M. Zolt (*Law*)
- 1990**
 Peter M. Narins (*Physiological Science*)
 Gary B. Nash (*History*)
 John S. Wiley (*Law*)
 Merlin C. Wittrock (*Education*)
 Ruth Yeazell (*English*)
- 1991**
 Michael R. Asimov (*Law*)
 Edward G. Berenson (*History*)
 Robert A. Bjork (*Psychology*)
 Margaret FitzSimmons (*Urban Planning*)
 Kenneth R. Lincoln (*English*)
- 1992**
 Bruce L. Baker (*Psychology*)
 Paul B. Bergman (*Law*)
 Robert B. Goldberg (*Molecular, Cell, and Developmental Biology*)
 Peter E. Kollock (*Sociology*)
 Eugen Weber (*History*)
- 1993**
 Calvin B. Bedient (*English*)
 Richard B. Kaner (*Chemistry and Biochemistry*)
 Katherine C. King (*Classics*)
 William G. Ouchi (*Management*)
 Bruce Schulman (*History*)
- 1994**
 David A. Binder (*Law*)
 Jon P. Davidson (*Earth and Space Sciences*)
 Melvin Oliver (*Sociology*)
 Barbara L. Packer (*English*)
 E. Victor Wolfenstein (*Political Science*)

1995

Noriko Akatsuka (*East Asian Languages and Cultures*)
 Douglas Hollan (*Anthropology*)
 V.A. Kolve (*English*)
 Jerome Rabow (*Sociology*)
 Paul V. Reale (*Music*)

1996

Walter Allen (*Sociology*)
 Judith A. Carney (*Geography*)
 William M. Gelbart (*Chemistry and Biochemistry*)
 Phyllis A. Guzé (*Medicine*)
 Peter B. Hammond (*Anthropology*)

1997

Uptal Banerjee (*Molecular, Cell, and Developmental Biology*)
 Christine D. Gutierrez (*Education*)
 Susan McClary (*Musicology*)
 Arnold B. Scheibel (*Neurobiology, Psychiatry and Biobehavioral Sciences*)
 Ivan Szelenyi (*Sociology*)

1998

George W. Bernard (*Dentistry*)
 Verónica Cortínez (*Spanish and Portuguese*)
 Wayne A. Dollase (*Earth and Space Sciences*)
 Jayne E. Lewis (*English*)
 Joshua S.S. Muldavin (*Geography*)

1999

Grace Ganz Blumberg (*Law*)
 Alessandro Duranti (*Anthropology*)
 Richard H. Gold (*Radiological Sciences*)
 N. Katherine Hayles (*English*)
 Bernard Weiner (*Psychology*)

2000

Scott H. Chandler (*Physiological Science*)
 Efraín Kristal (*Spanish and Portuguese*)
 Hector F. Myers (*Psychology*)
 David Sklansky (*Law*)
 Robert N. Watson (*English*)

2001

Michael J. Colacurcio (*English*)
 Glen M. MacDonald (*Geography*)
 Kevin Terraciano (*History*)
 James W. Trent (*Education*)
 Brian Walker (*Political Science*)

2002

Christopher R. Anderson (*Mathematics*)
 Steven G. Clarke (*Chemistry and Biochemistry*)
 Anne K. Mellor (*English*)
 Lee Todd Miller (*Pediatrics*)
 Grant S. Nelson (*Law*)

2003

Joseph J. DiStefano III (*Computer Science, Medicine*)
 Robin L. Garrell (*Chemistry and Biochemistry*)
 A.P. Gonzalez (*Film, Television, and Digital Media*)
 Mitchell B. Morris (*Musicology*)
 Kirk J. Stark (*Law*)

2004

David B. Kaplan (*Philosophy*)
 Kathryn A. Morgan (*Classics*)
 Mark R. Morris (*Physics and Astronomy*)
 Jesús Torrecilla (*Spanish and Portuguese*)

Joan Waugh (*History*)

2005

Roger Bourland (*Music*)
 Robert G. Fovell (*Atmospheric and Oceanic Sciences*)
 Elma González (*Ecology and Evolutionary Biology*)
 Elizabeth A. Marchant (*Spanish and Portuguese*)
 Mike Rose (*Education*)
 Keith D. Stolzenbach (*Civil and Environmental Engineering*)

2006

Robert A. Gurval (*Classics*)
 Patricia M. McDonough (*Education*)
 Albert J. Moore (*Law*)
 Kenneth A. Nagy (*Ecology and Evolutionary Biology*)
 David L. Rigby (*Geography*)
 Geoffrey W. Symcox (*History*)

2007

John A. Agnew (*Geography*)
 Devon Carbado (*Law*)
 Valerie J. Matsumoto (*Asian American Studies, History*)
 Behzad Razavi (*Electrical Engineering*)
 Daniel G. Solórzano (*Education*)
 Blaire Van Valkenburgh (*Ecology and Evolutionary Biology*)

2008

Elizabeth L. Bjork (*Psychology*)
 Peggy M. Fong (*Ecology and Evolutionary Biology*)
 Linda C. Garro (*Anthropology*)
 Teofilo F. Ruiz (*History*)
 Benjamin J. Schwartz (*Chemistry and Biochemistry*)
 Robert S. Winter (*Music*)

2009

Roger Detels (*Epidemiology*)
 Luisa M. Iruela-Arispe (*Molecular, Cell, and Developmental Biology*)
 Yung-Ya Lin (*Chemistry and Biochemistry*)
 Mark B. Moldwin (*Earth and Space Sciences*)
 Susan J. Plann (*Applied Linguistics and Spanish and Portuguese*)
 Janice L. Reiff (*History*)

2010

Katsushi Arisaka (*Physics and Astronomy*)
 Daniel T. Blumstein (*Ecology and Evolutionary Biology*)
 John T. Caldwell (*Film, Television, and Digital Media*)
 Albert J. Courey (*Chemistry and Biochemistry*)
 Jerry Kang (*Law*)
 Steven P. Reise (*Psychology*)

Non-Academic Senate Recipients

In spring of 1985, the Office of Instructional Development began sponsorship of awards to three instructors who are not members of the Academic Senate. This category includes lecturers and adjunct and clinical faculty members. All non-Academic Senate faculty members who are nominated by their departments are eligible. Recipients are selected by the Academic Senate Committee on Teaching, utiliz-

ing the same criteria as that used for Academic Senate members.

The Luckman Distinguished Teaching Awards Program was established in late 1991 after receipt of a generous gift from Harriet and Charles Luckman. Awards given for 1992 through 1997 were named the Luckman Distinguished Teaching Awards.

1985

L. Geoffrey Cowan (*Communication Studies*)
 Mary Elizabeth Perry (*History*)
 Linda Diane Venis (*English*)

1986

David Cohen (*Mathematics*)
 Johanna Harris-Heggie (*Music*)
 Paul Von Blum (*Interdisciplinary*)

1987

Carol D. Berkowitz (*Pediatrics*)
 Jeffrey I. Cole (*Communication Studies*)
 Cheryl Giuliano (*Writing Programs*)

1988

Jeanne Gunner (*Writing Programs*)
 Art Huffman (*Physics and Astronomy*)
 David G. Kay (*Computer Science*)

1989

S. Scott Bartchy (*History*)
 Bonnie Lisle (*Writing Programs*)
 Kenneth R. Pfeiffer (*Civil Engineering, Psychology*)

1990

Lisa Gerrard (*Writing Programs*)
 Andres Durstenfeld (*Biology*)
 Dorothy Phillips (*Physiological Science*)

1991

Marde S. Gregory (*Speech*)
 Betty A. Luceigh (*Chemistry and Biochemistry*)
 Cheryl Pfoff (*Writing Programs*)

1992

Janet Goodwin (*Teaching English as a Second Language and Applied Linguistics*)
 Janette Lewis (*Writing Programs*)
 Yihua Wang (*East Asian Languages and Cultures*)

1993

Stephen Dickey (*English*)
 Sondra Hale (*Anthropology*)
 Jutta Landa (*Germanic Languages*)

1994

Steven K. Derian (*Law*)
 Linda Jensen (*Teaching English as a Second Language and Applied Linguistics*)
 Shelby Popham (*Writing Programs*)

1995

Nicholas Collaros (*French*)
 Kristine S. Knaplund (*Law*)
 Christopher Mott (*English*)

1996

Scott Bowman (*Political Science*)
 Timothy Tangherlini (*Scandinavian Section*)
 G. Jennifer Wilson (*Honors and Undergraduate Programs*)

1997

William McDonald (*Film and Television*)

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Stuart Slavin (*Pediatrics*)
Sung-Ock Sohn (*East Asian Languages and Cultures*)

1998

Paul Frymer (*Political Science*)
George Gadda (*Writing Programs*)
Julie Giese (*English*)

1999

Patricia Gilmore-Jaffe (*Writing Programs*)
Emily Schiller (*English*)
Scott Votey (*UCLA Emergency Medicine Center*)

2000

Nicole Dufresne (*French*)
Thomas Holm (*Law*)
Richard P. Usatine (*Family Medicine*)

2001

George Leddy (*Geography/International Development Studies*)
Sandra Mano (*Writing Programs*)
L. Jean Perry (*Molecular, Cell, and Developmental Biology*)

2002

Steven Hardinger (*Chemistry and Biochemistry*)
Colleen K. Keenan (*Nursing*)
Cynthia Merrill (*Writing Programs*)

2003

Marjorie A. Bates (*Chemistry and Biochemistry*)
Anita McCormick (*Writing Programs*)
Richard Stevenson III (*Dentistry*)

2004

Andrew Hsu (*Philosophy*)
Kimberly Jansma (*French and Francophone Studies*)
Jennifer Westbay (*Writing Programs*)

2005

Susan Griffin (*Writing Programs*)
William Grisham (*Psychology*)
Anahid Keshishian (*Near Eastern Languages and Cultures*)

2006

Roger E. Bohman (*Molecular, Cell, and Developmental Biology*)

Jo Ann Damron-Rodriguez (*Social Welfare*)
Gerald Wilson (*Ethnomusicology*)

2007

Nancy Ezer (*Near Eastern Languages and Cultures*)
Fred A. Hagigi (*Health Services*)
Eric Marin (*Film, Television, and Digital Media*)

2008

Leigh C. Harris (*Writing Programs*)
Chi Li (*Ethnomusicology*)
Robert B. Trelease (*Pathology and Laboratory Medicine*)

2009

Brent Corbin (*Physics and Astronomy*)
Laurence Lavelle (*Chemistry and Biochemistry*)
Fariba Younai (*Dentistry*)

2010

Patrick D. Goodman (*Law*)
Amy H. Kaji (*Medicine*)
Rory M. Kelly (*Film, Television, and Digital Media*)

Gold Shield Faculty Prize

The \$30,000 Gold Shield Faculty Prize, an award for academic excellence, was created by the Gold Shield Alumnae of UCLA in celebration of their fiftieth anniversary in 1986. The prize is funded by an endowment of \$250,000 raised by Gold Shield for this purpose, which has grown to over \$450,000. Guidelines provide that the prize "recognize and reward UCLA faculty members who have demonstrated extraordinary accomplishment in teaching and in research or creative activity...and who have made a significant contribution to undergraduate education." Preference for recipients is given to faculty members in mid-career who do not often receive the extra professional incentives available to distinguished senior faculty.

The Gold Shield Faculty Prize is awarded to each recipient for scholarly use. The awardee is selected every year by a committee of peers

appointed by the Academic Senate. Student and Gold Shield representatives are included. Recipients must come from fields that have undergraduate programs at UCLA.

1986-88

Michael E. Jung (*Chemistry and Biochemistry*)

1988-90

Patricia M. Greenfield (*Psychology*)

1990-92

Jeffrey C. Alexander (*Sociology*)

1992-94

J. William Schopf (*Earth and Space Sciences*)

1994-96

Albert R. Braunmuller (*English*)

1996-98

Peter M. Narins (*Physiological Science*)

1998-00

Robert B. Goldberg (*Molecular, Cell, and Developmental Biology*)

2000-02

Utpal Banerjee (*Molecular, Cell, and Developmental Biology*)

2002-04

Richard B. Kaner (*Chemistry and Biochemistry*)

2004-06

Andrea M. Ghez (*Physics and Astronomy*)

2006

Robert N. Watson (*English*)

2007

William J. Kaiser (*Electrical Engineering*)

2008

Alicia Gaspar de Alba (*Chicana and Chicano Studies*)

2009

Robin L. Garrell (*Chemistry and Biochemistry*)

2010

David H. Gere (*World Arts and Cultures*)

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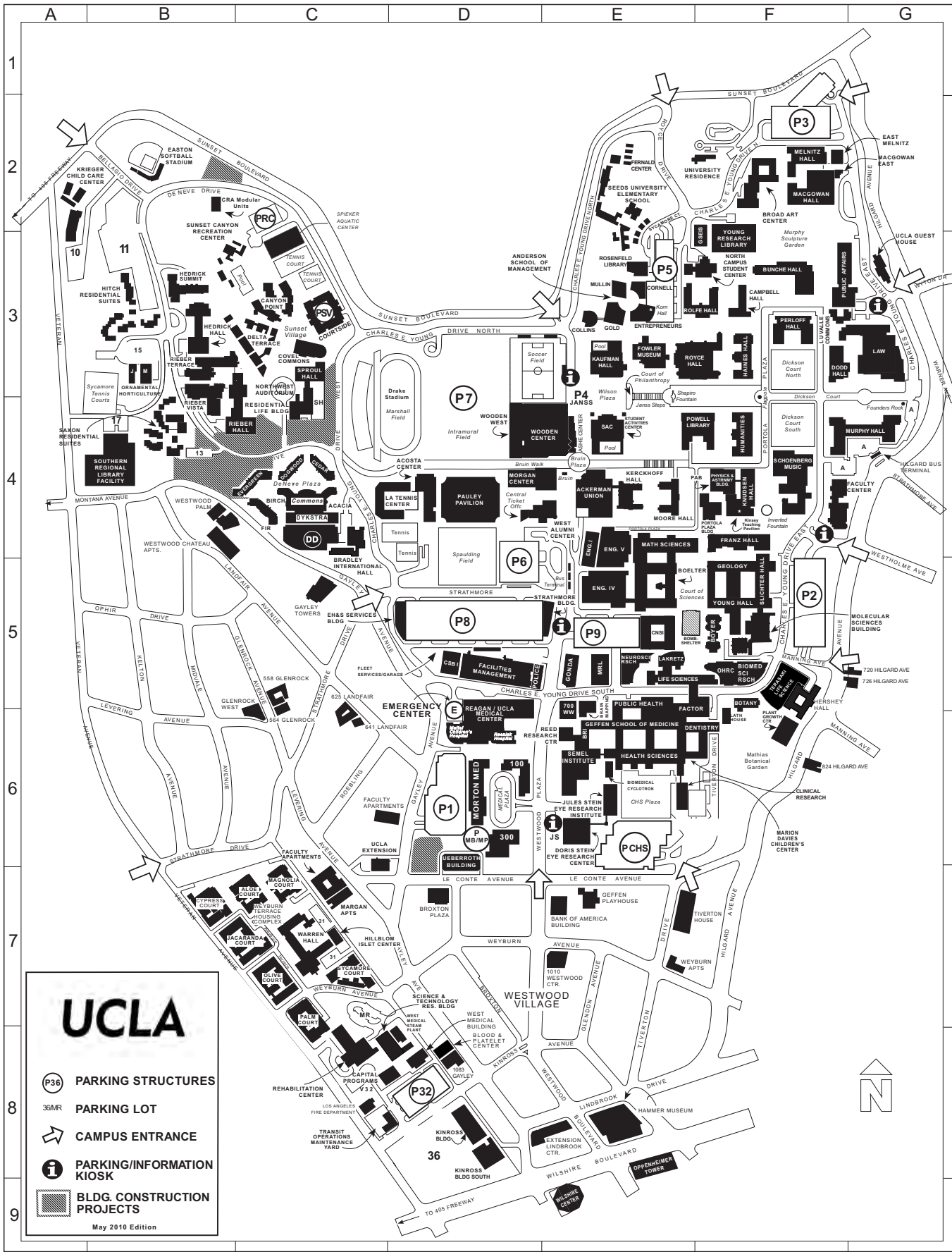
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- 36MR PARKING LOT
- ➔ CAMPUS ENTRANCE
- i PARKING/INFORMATION KIOSK
- BLDG. CONSTRUCTION PROJECTS

May 2010 Edition

CAMPUS BUILDINGS

Ackerman Student Union
 Acosta Training Center
 Anderson Graduate School of Mgmt.
 Collins Executive Education Center
 Cornell Hall
 Entrepreneurs Hall
 Korn Convocation Hall
 Gold Hall
 Mullin Management Commons
 Rosenfeld Library
 Ashe Center
 Bank of America Building
 Biomedical Cyclotron
 Biomedical Sciences Research Building
 Boelter Hall (Engineering II and III)
 Bombshelter Food Facility
 Botany Building
 Boyer Hall (formerly MBI)
 Bradley International Hall
 Brain Mapping Center
 Brain Research Institute (BRI)
 Broad Art Center (formerly Dickson Art Ctr)
 Broxton Plaza
 Bunche Hall
 California NanoSystems Institute Building
 Campbell Hall
 Campus Services Building I
 Capital Programs Building
 Career Center (Strathmore Building)
 Center for the Health Sciences (CHS)
 Central Ticket Office
 Clinical Research
 Covell Commons (Sunset Village)
 CRA Modular Units
 Dentistry, School of
 De Neve Plaza Housing Complex
 Acacia Residential Building
 Birch Residential Building
 Cedar Residential Building
 Dogwood Residential Building
 Evergreen Residential Building
 Firgrove Residential Building
 De Neve Plaza Commons Building
 Dodd Hall
 Doris Stein Eye Research Center
 Drake Track and Field Stadium
 Dykstra Hall
 East Melnitz Building
 Easton Women's Softball Field
 EH&S Services Building
 Engineering I
 Engineering IV
 Engineering V
 Extension Lindbrook Center
 Facilities Management Building
 Factor Health Sciences Building
 Faculty Apartments-Gayley
 Faculty Apartments-Levering
 Faculty Center
 Fernald Center
 Fleet Services/Garage
 Fowler Museum at UCLA
 Franz Hall
 Gayley Towers
 Geffen Playhouse
 Geology Building
 Gonda (Goldschmied) Center
 Graduate School of Education and Information Studies (GSEIS)
 Haines Hall
 Hammer Museum, UCLA
 Hedrick Hall
 Hedrick Summit
 Hershey Hall
 Hilgard Bus Terminal
 Hillblom Islet Research Center
 Hitch Residential Suites
 Humanities Building (formerly Kinsey Hall)
 Jules Stein Eye Institute
 Kaufman Hall (formerly Dance Building)
 Kerckhoff Hall
 Kinross Building
 Kinross Building South
 Kinsey Science Teaching Pavilion
 Knudsen Hall
 Krieger Child Care Center
 La Kretz Hall
 Landfair Apartments
 Lath House
 Law, School of
 Life Sciences Building
 Los Angeles Tennis Center
 Lu Valle Commons
 MacDonald Medical Research Labs (MRL)
 Macgowan Hall
 Macgowan Hall East
 Mail, Document, and Distribution Services
 Margan Apartments
 Marion Davies Children's Center
 Mathematical Sciences Building
 Mattel Children's Hospital UCLA

GRID STREET ADDRESS

E4 308 Westwood Plaza
 D4 410 Charles E. Young Dr. West
 E3 110 Westwood Plaza
 E3 110 Westwood Plaza
 E3 110 Westwood Plaza
 E3 110 Westwood Plaza
 E3 110 Westwood Plaza
 E3 110 Westwood Plaza
 E4 221 Westwood Plaza
 E7 924 Westwood Boulevard
 E6 780 Westwood Plaza
 F5 615 Charles E. Young Dr. South
 E5 580 Portola Plaza
 E5 617 Charles E. Young Dr. East
 F5 618 Charles E. Young Dr. South
 F5 611 Charles E. Young Dr. East
 C5 417 Charles E. Young Dr. West
 E5 660 Charles E. Young Dr. South
 E6 670 Charles E. Young Dr. South
 F2 240 Charles E. Young Dr. North
 D7 911 S. Broxton Avenue
 F3 315 Portola Plaza
 E5 570 Westwood Plaza
 F3 335 Portola Plaza
 D5 741 Charles E. Young Dr. South
 D8 1060 Veteran Avenue
 D5 460 Portola Plaza
 E6 10833 LeConte Avenue
 D4 325 Westwood Plaza
 F6 700 Tiverton Drive
 C3 200 De Neve Drive
 B2 101 De Neve Drive
 F5 714 Tiverton Drive
 C4 341 Charles E. Young Dr. West
 C4 361 Charles E. Young Dr. West
 C4 301 Charles E. Young Dr. West
 C4 321 Charles E. Young Dr. West
 C4 331 Charles E. Young Dr. West
 C4 381 Charles E. Young Dr. West
 C4 351 Charles E. Young Dr. West
 F3 390 Portola Plaza
 E6 200 Stein Plaza
 C4 340 Charles E. Young Dr. North
 C4 401 Charles E. Young Dr. West
 F2 235 Charles E. Young Dr. East
 B2 100 De Neve Drive
 D5 550 Charles E. Young Dr. West
 E4 404 Westwood Plaza
 E5 420 Westwood Plaza
 E5 410 Westwood Plaza
 D8 10934-10936 Lindbrook Drive
 D5 731 Charles E. Young Dr. South
 F5 700 Tiverton Drive
 C6 715 Gayley Avenue
 C7 827 Levering Avenue
 F4 480 Charles E. Young Dr. East
 E2 320 Charles E. Young Dr. North
 D5 751 Charles E. Young Dr. South
 E3 308 Charles E. Young Dr. North
 F4 502 Portola Plaza
 C5 565 Gayley Avenue
 E7 10886 LeConte Avenue
 F5 595 Charles E. Young Dr. East
 E5 695 Charles E. Young Dr. South
 E3 290 Charles E. Young Dr. North
 F3 375 Portola Plaza
 E8 10889 Wilshire Boulevard
 B3 250 De Neve Dr.
 B3 240 De Neve Dr.
 F5 801 Hilgard Avenue
 G4 403 Hilgard Avenue
 C7 900 Weyburn Place North
 B3 245 De Neve Drive
 F4 415 Portola Plaza
 E6 100 Stein Plaza
 E3 120 Westwood Plaza
 E4 308 Westwood Plaza
 D8 11000 Kinross Avenue
 D8 11020 Kinross Avenue
 F4 475 Portola Plaza
 F4 475 Portola Plaza
 A2 101 Bellagio Drive
 E5 619 Charles E. Young Dr. East
 C5 625-641 Landfair Avenue
 F6 707 Tiverton Drive
 G3 385 Charles E. Young Dr. East
 E5 621 Charles E. Young Dr. South
 D4 420 Charles E. Young Dr. West
 F3 398 Portola Plaza
 E5 675 Charles E. Young Dr. South
 F2 245 Charles E. Young Dr. East
 F2 243 Charles E. Young Dr. East
 D5 555 Westwood Plaza
 C7 885 Levering Avenue
 E6 805 Tiverton Drive
 E4 520 Portola Plaza
 D6 757 Westwood Plaza

CAMPUS BUILDINGS

Medical Plaza 100 (MP 100)
 Medical Plaza 300 (MP 300)
 Medicine, David Geffen School of
 Melnitz Hall
 Molecular Sciences Building
 Moore Hall
 Morgan Intercollegiate Athletics Center
 Morton Medical Building (MP 200)
 Murphy Hall
 Neuroscience Research Building
 North Campus Student Center
 Northwest Campus Auditorium
 Oppenheimer Tower
 Ornamental Horticulture Building J
 Ornamental Horticulture Building M
 Orthopaedic Hospital Research Center
 Pauley Pavilion
 Perloff Hall
 Physics and Astronomy Building (PAB)
 Plant Growth Center
 Police Station
 Portola Plaza Building
 Powell Library
 Public Affairs Building, School of
 Public Health, School of
 Reed Neurological Research Center
 Rehabilitation Center
 Residential Life Building
 Resnick Neuropsychiatric Hospital
 Rieber Hall
 Rieber Terrace
 Rieber Vista
 Rolfe Hall
 Ronald Reagan UCLA Medical Center
 Royce Hall
 Saxon Residential Suites
 Schoenberg Music Building
 Science and Technology Research Bldg.
 Semel Institute (formerly NPI&H)
 Slichter Hall
 Southern Regional Library Facility (SRLF)
 Spieker Aquatic Center
 Sprout Hall
 Strathmore Building
 Student Activities Center (SAC)
 Sunset Canyon Recreation Center
 Sunset Village
 Canyon Point Residence Hall
 Courtside Residence Hall
 Covell Commons
 Delta Terrace Residence Hall
 Terasaki Life Sciences Building
 Tiverton Patient Family Guest House
 Transit Operations Maintenance Yard
 UCLA Extension (UNEX)
 UCLA Guest House
 UCLA Lab School (formerly UES)
 Ueberroth Building
 University Residence
 Warren Hall
 West Alumni Center
 West Medical Building
 West Medical Steam Plant
 Westwood Chateau Apartments
 Weyburn Apartments
 Weyburn Terrace Housing Complex
 Aloe Court
 Cypress Court
 Jacaranda Court
 Magnolia Court
 Olive Court
 Palm Court
 Sycamore Court
 Wilshire Center
 Wooden Recreation and Sports Center
 Wooden West
 Young Hall
 Young Research Library (YRL)
 1010 Westwood Center
 700 Westwood Plaza

GRID STREET ADDRESS

D6 100 Medical Plaza
 D6 300 Medical Plaza
 E6 10833 LeConte Avenue
 F2 235 Charles E. Young Dr. East
 F5 609 Charles E. Young Dr. East
 E4 457 Portola Plaza
 D4 301 1/2 Westwood Plaza
 D6 200 Medical Plaza
 F4 410 Charles E. Young Dr. East
 E6 635 Charles E. Young Dr. South
 E3 295 Charles E. Young Dr. North
 C4 200 De Neve Drive
 E8 10880 Wilshire Boulevard
 B3 267 De Neve Drive
 B3 265 De Neve Drive
 F5 615 Charles E. Young Dr. South
 D4 301 Westwood Plaza
 F3 365 Portola Plaza
 F4 470 Portola Plaza
 F5 614 Charles E. Young Dr. South
 D5 601 Westwood Plaza
 F4 460 Portola Plaza
 E4 10740 Dickson Plaza
 F3 337 Charles E. Young Dr. East
 E5 640 Charles E. Young Dr. South
 E6 710 Westwood Plaza
 C8 1000 Veteran Avenue
 B4 370 De Neve Drive
 E6 760 Westwood Plaza
 C4 310 De Neve Drive
 B3 270 De Neve Drive
 B4 280 De Neve Drive
 E3 345 Portola Plaza
 D6 757 Westwood Plaza
 E3 10745 Dickson Plaza
 B4 325 De Neve Drive
 F4 445 Charles E. Young Dr. East
 C8 1004 Veteran Avenue
 E6 760 Westwood Plaza
 F5 603 Charles E. Young Dr. East
 B4 305 De Neve Drive
 C3 114 De Neve Drive
 C3 350 De Neve Drive
 E5 501 & 555 Westwood Plaza
 E4 220 Westwood Plaza
 C3 111 De Neve Drive
 C3 200 De Neve Drive
 C3 200 De Neve Drive
 C3 200 De Neve Drive
 C3 200 De Neve Drive
 F5 610 Charles E. Young Dr. East
 E7 900 Tiverton Avenue
 D8 11075 Kinross Drive
 C6 10995 LeConte Avenue
 G3 330 Charles E. Young Dr. East
 E2 305 Sycamore Court
 D6 10945 LeConte Avenue
 F2 10570 Sunset Boulevard
 C7 900 Weyburn Place North
 D4 325 Westwood Plaza
 D8 1010 Veteran Avenue
 D8 1021 Weyburn Place South
 C4 456 Landfair Avenue
 D7 10845-10855 Weyburn Avenue
 C7 740 Weyburn Terrace
 B7 725 Weyburn Terrace
 C7 785 Weyburn Terrace
 C7 765 Weyburn Terrace
 C7 825 Weyburn Terrace
 C7 945 Weyburn Terrace
 C7 925 Weyburn Terrace
 E9 10920 Wilshire Boulevard
 D4 221 Westwood Plaza
 D4 221 Westwood Plaza
 F5 607 Charles E. Young Dr. East
 F2 280 Charles E. Young Dr. North
 E7 1010 Westwood Boulevard
 E5 700 Westwood Plaza
 F3 1400 Public Affairs Building
 E6 12-077 CHS
 E4 Powell Library Building
 F2 21617 Young Research Library
 G3 1112 Law Building
 E3 E301 Rosenfeld Library Building
 F4 1102 Schoenberg Music Bldg.
 F2 280 Charles E. Young Dr. North
 E5 8270 Boelter Hall
 F5 4697 Geology Building
 F5 4238 Young Hall
 B4 305 De Neve Drive
 F2 280 Charles E. Young Dr. North

CAMPUS LIBRARIES

Arts Library
 Biomedical Library (Louise M. Darling)
 College Library
 East Asian Library (Richard C. Rudolph)
 Law Library (Hugh and Hazel Darling)
 Management Library (Eugene and Maxine Rosenfeld)
 Music Library
 Research Library (Charles E. Young)
 Science and Engineering Library/Engineering and Mathematical Sciences
 Science and Engineering Library/Geology-Geophysics
 Science and Engineering Library/Chemistry
 Southern Regional Library Facility (SRLF)
 Young Research Library (YRL)